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TABLE OF CONTENTS

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ORIGINAL ARTICLES

DRIED MILK. By Timothy Leary, M.D., Boston.....	591
CHRONIC FERMENTATIVE INTESTINAL INDURATION. By Isaac Rudolph Jankelson, M.D., Boston.....	597
THE CARE OF PREGNANCY AND LABOR IN PATIENTS PREVIOUSLY DELIVERED BY CAESAREAN SECTION. By John T. Wilkams, M.D., F.A.C.S., Boston.....	599
SARCOMA OF THE JAW, WITH CASE REPORT. By Harold J. Gibby, M.D., Worcester, Mass.....	602
RELATION OF FAULTY CULTURES TO DIPHTHERIA MORTALITY. By Edward Scott O'Keefe, M.D., Boston.....	603
Autografting of the Ovary. By Joseph H. Mezer, M.D., Boston.....	604
LEGISLATIVE MATTERS.....	606

BOOK REVIEWS

Griffith's Pediatrics.....	608
Diet in Health and Disease. By Julius Friedenwald, M.D.....	608
A Treatise on Diseases of the Skin for Advanced Students and Practitioners. By Henry W. Stielwagon, M.D. Ph.D.....	608
The Intestinal Protozoa of Man. By Clifford Dobell, M.A., F.R.S., and F. W. O'Connor, M.R.C.S.....	609
The Spleen and Some of Its Diseases. By Sir Berkeley Moynihan.....	609
A Manual of Obstetrics. By John Cooke Hirst, M.D.....	609
Gynecology. By William F. Graves, M.D.....	610
Surgical Shock and the Shockless Operation Through Anest. Association. By George W. Crile, M.D.....	610
A Textbook of Physiology for Students and Practitioners of Medicine. By Russell Burton-Opitz, M.D., Ph.D.....	610
Principles and Practices of Physical Diagnosis. By John C. Da Costa, Jr., M.D.....	610
A Psychiatric Milestone.....	610

South America from a Surgeon's Point of View. By Frank- lin H. Martin, C.M.C., M.D., and others.....	611
An Introduction to the History of Medicine. By Fielding H. Garrison.....	611
Hospital of the Protestant Episcopal Church in Philadelphia Pneumonia. By Frederick Taylor Lord, A.B., M.D.....	612

CURRENT LITERATURE DEPARTMENT.....	613
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EDITORIALS

HOSPITAL SURVEYS.....	615
SOME DANGERS ASSOCIATED WITH MILK.....	616
MONTANA MATERNAL DEATHS.....	616
THE CREDULOUS ABERDEONIANS.....	616
HOOVER'S RECENT FIND IN CARBON TETRACHLORIDE.....	617
NEWS ITEMS.....	617

MISCELLANY

EMINENT SCIENTISTS STARVING IN RUSSIA.....	618
MEDICAL WORK IN THE NEAR EAST.....	619
A BOOBY CANCER CURE.....	619
ANOTHER ROCKEFELLER GIFT.....	619
MEDICAL LEGISLATION IN KENTUCKY.....	619
RESENTS CRITICISM.....	619
OPPORTUNITY OF ANTIVACCINATIONISTS.....	619
LIST OF PUBLICATIONS ON INDUSTRIAL HYGIENE.....	619
MASSACHUSETTS TUBERCULOSIS LEAGUE.....	620

CORRESPONDENCE

DRIED MILK. Timothy Leary.....	621
OBJECTION TO INTERPRETATION OF DR. COPELAND'S STATE- MENT. S. Dana Hubbard, M.D.....	621
HOLDEN DISTRICT HOSPITAL, INC. Frank H. Washburn.....	622
PANCREATIC EXTRACTS FOR THE TREATMENT OF DIABETES. Elliott P. Joslin.....	623

Original Articles.

DRIED MILK.

By TIMOTHY LEARY, M.D., BOSTON.
Professor of Pathology, Tufts Medical School.

THE fact that milk is a fluid and, further, that it is a good culture medium, is responsible for its transmission of disease. The evidence is fairly complete that it is not the few typhoid bacilli which are implanted in milk originally that produce epidemics, but the result of their multiplication and distribution throughout a favorable culture medium. With streptococci originating in the milk this statement is, of course, less true. The evidence is complete with reference to food poisoning with milk or milk products, such as ice cream, that it is not the original bacterial content of the milk that counts, but the numbers that arise from multi- plication after the milk has been drawn. It is self-evident that the original dosage of bacteria is of great importance, and nothing which has been said is to be construed as justifying, in any way, carelessness in the collection or handling of the milk. The basic fact remains that multiplication of the bacteria originally in the milk, or implanted in it during or after its collection, makes of this nearest approach to an ideal food a menace.

Because of its fluid character milk is a per- ishable food, and a large part of the expense of milk as delivered to the householder arises out of its perishable character. Special cars or trains with express transportation, special con- tainers, refrigerators, special delivery, and me- ticulous care in handling, are responsible for a large part of the expense of what is unani- mously agreed to be the most necessary single food of the human being.

The following table of costs of milk as sup- plied to the consumer, is published by a local milk contractor:

THE COSTS OF A QUANT OF MILK

1. Paid to milk producers (average for year)	8.23 cents
2. Station care, testing, weighing and carefully icing milk for transportation to the city.....	0.26 cents
3. Loss by reason of manufacturing the surplus milk and through shrinkage... ..	0.26 cents
4. Transportation from the country sta- tion to the city railway terminal.....	0.91 cents
5. Furnishing containers for shipping milk from country to city.....	0.07 cents
6. Maintaining and operating milk wag- ons, harnesses, hay, grain, etc., for horses	1.28 cents
7. Keeping books and furnishing office supplies, insurance, telephone, and the thousand and one things necessary to the efficient general management of a business	0.78 cents
Officers' and executives' salaries for services rendered	0.06 cents

8. Washing and sterilizing cans and covers	0.11 cents
9. Maintaining and operating model sanitary milk plants	0.23 cents
10. Perfectly pasteurizing milk for absolute safety. Furnishing countless glass jars for unit delivery and washing and sterilizing milk jars, and	
11. Furnishing refrigeration and ice to keep milk cold	0.96 cents
12. Maintaining and operating chemical and bacteriological laboratories, and buying and inspecting milk	0.07 cents
13. Maintaining and operating a fleet of trucks with gasoline, oil, tires, supplies, etc.	0.67 cents
14. Advertising milk to the public, thereby creating good-will and increasing the volume of business	0.20 cents
15. Hiring and training and wages for an organization of foremen, salesmen and helpers to sell and distribute milk to the public	2.94 cents
16. The unavoidable loss through bad debts	0.26 cents
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The total cost of a quart of milk delivered to the consumer	17.28 cents

A glance at the above list will indicate what a large proportion of the cost is due to the perishable character of the product.

The removal of the water from milk makes it a poor culture medium and largely does away with its perishable qualities. Various methods of concentration, by evaporation, by condensation with or without sugar, and finally by drying, have been practised. Evaporated and condensed milk retain a considerable bulk of water, and from a practical standpoint, have no place in modern economy, if drying can be carried out without the loss of any of the milk qualities.

There are two standard processes of drying milk in use today, the roll and the spray systems. The older vacuum pan method has been largely discarded.

In the roll process, the milk adheres to the surfaces of hot rolls, heated usually by steam (110° to 140° C.), and after a partial revolution of the roll is scraped off in the form of a moist powder, the whole procedure requiring usually a matter of seconds.

In the spray process the milk is atomized under great pressure into a chamber where it meets whirling currents of warm air. The temperature is lower than that used in the drum method, but the exposure is longer. The droplets of milk give up their water to the warm air and the solids drop to the bottom of the chamber. The atomization of unconcentrated milk gives rise to so fine an impalpable powder, because of the small solid content of the droplets, that the powder tends to cake and does not mix readily with water. The milk is, therefore, usually concentrated before being atomized, the resulting powder showing larger granules and mixing with water more readily.

It has been shown that the reconstructed milk from milk powder, prepared by either method, has, in general, the physical and chemical properties of the original milk. The only debatable point is with reference to the flavor and to the retention of certain enzymes and notably of vitamins.

VITAMINES.

Fat-soluble vitamin A is highly resistant to heat, though not to oxidation, and is retained apparently in large part by either method of drying milk. It is intimately associated with the fat pigments, and is destroyed by exposure to light, which destroys these pigments. Water-soluble vitamin B is relatively insensitive to heat, but susceptible to oxidation. It is not seriously affected by drying, and in the storage and handling of milk powder the loss of this vitamin should be very slow. Emmet and Luros² discuss a possible difference between the anti-neuritic and growth-promoting vitamins, which have been classified together under the label "water-soluble B," based on the greater heat lability of the anti-neuritic vitamin; but the heat resistance of even the anti-neuritic vitamin is so great that it would not be injured by the temperatures used in drying milk.

While it is recognized that fat-soluble A and water-soluble B vitamins are so abundant in milk that the loss even from oxidation is not vital, there is ground for debate with reference to the antiscorbutic vitamin, i.e., water-soluble C. It should be kept in mind that raw milk should not be considered as necessarily having potent antiscorbutic properties.^{3, 4}

From the practical standpoint, the *Reports of the (British) Local Government Board on Public Health, etc.*,⁵ after an exhaustive study of dried milks (quoted also in the *U. S. Public Health Reports*)⁶, conclude that:

"The evidence from the clinics (infant feeding) is unanimous as to the absence of scurvy on a diet of dried milk. Millard and Naish, in England, confirm the testimony of Mille, in Belgium, and Gautier and Genevoix, in France, that scurvy is not to be feared." Attention is called, however, to the reports of Chick *et al.*,⁷ that even raw, cow's milk is poor in the antiscorbutic vitamin, and that the heating or drying of milk further diminishes the amount of this substance.

In the summary and conclusions it is further stated that, "The preparations with which dried milk may be compared are boiled milk, sterilized milk, and humanized (modified) milk. From the point of view of chemical composition, boiled milk and sterilized milk correspond fairly closely with reconstituted dried milk. In all three cases the milk constituents are altered by heating, but I think there is ample evidence

that these alterations do not seriously affect the nutritive value of the milk."

One is tempted to wonder whether the European infant is not more adaptable or, perhaps, more resistant than the American infant, when one reads the following unorthodox judgments with reference to humanized (modified) milk.

"I would not like to say that modification of cow's milk is not, on some occasions, very valuable and even necessary, but I am of opinion that, as a rule, simple modifications only are needed, and that most babies can be educated to take cow's milk either unmodified or only slightly modified, and that it is probably only in exceptional cases that specially modified milk needs to be given continuously for prolonged periods. I think there is a considerable reaction against the elaborate and expensive modifications of cow's milk to make it conform more or less closely to some ideal composition, which will render the milk comparable from a purely chemical standpoint with human milk," etc.

The work of the British investigators was based upon milk dried by the cylinder or roll method (six different patented processes), by the blowing of hot air through milk (one process), by vacuum pan drying (one process), and by one spray drying process. The report is not discriminative as to the difference between roll dried and spray dried milk.*

Since this report was made, several laboratory investigators have noted a difference between roll dried and spray dried milk, with reference to the preservation of the antiscorbutic vitamine.

Hess and Unger⁷ tested a brand of dried milk, which had been heated to 116° C. for one minute (evidently by the roll process), and found that when it was given to the guinea pig to the equivalent of 80 c.c. of fresh milk, it was able to cure scurvy. But they say further (p. 228), "It should be remembered, however, that milk heated for a long period in the course of drying loses much of its protective value, and furthermore, that our experience has not embraced the question of whether dried milk undergoes gradual changes in the course of a period of many months." . . . "Babies fed on pasteurized milk must have additional antiscorbutic food in their dietary." . . . "The fact that cow's milk is pasteurized or boiled, that it is not perfectly fresh and has undergone considerable handling, that it is diluted and cannot be given in full strength, all contribute to decrease its antiscorbutic potency."

Hart Steenbock and Smith⁸, in a study on

"Experimental Scurvy," conclude: "Milk sterilized at 120° C. for ten minutes, commercial unsweetened condensed milk, and the commercial milk powder (spray process) examined, had lost their antiscorbutic properties, when used in quantities equivalent to an amount of raw milk which would prevent scurvy in guinea pigs on a diet of rolled oats and dried hay."

From a later, more extensive study of milk powders, the same authors⁹ conclude:

1. "Milk powders vary in their antiscorbutic properties. Aside from the factor of the initial quantity of this vitamine in the milk as influenced by feed, the powders vary in their potency with the process used in their manufacture, the spray processes of manufacture being more destructive of the antiscorbutic properties than the roll process."

2. "These results should in no way condemn the milk powders made by the spray processes. They only point out their limitations when used as the sole source of nutrients in infant feeding."

3. "Probably with all milk powders, irrespective of method of manufacture, the safest procedure in a restricted dietary, particularly in infant feeding, is to supplement them with some potent source of the antiscorbutic vitamine. A possible exception to this statement would apply to the powders made by the (roll) process, where the cow's ration is made rich in the antiscorbutic vitamine by the proper selection of roots and tubers."

Jephcott and Bacharach¹⁰, as a result of a study of "The Antiscorbutic Value of Dried Milk," conclude: "Animals have been fed upon summer milk, winter milk, and neutralized milk dried by a roller process, and upon milk dried by the spray process. In the case of the summer and winter milks, the antiscorbutic values were found to be about equal to one another and to those of the original raw milks. The neutralized milk had an antiscorbutic value slightly less than that of the raw milk, and the spray process dried milk was markedly deficient in antiscorbutic value."

Dutcher and Askerman¹¹ report the result of experiments on guinea pigs in which the antiscorbutic value of raw milk and dried milk was compared. The dried milk was produced by spraying milk into a cell four feet square. The temperature of the chamber was 115° C. The temperature at the spraying nozzle never equalled 100° C. Each quart of milk required 1400 cubic feet of hot air for drying. The milk powder lay on the floor of the chamber until drying was complete,—a matter of two to three hours. The control animals were fed on a cereal diet with 30 c.c. raw milk per day, the test animals on a similar diet with 30 c.c. reconstituted milk from the dried milk per day. All test animals died in

*There is collateral evidence in the report which suggests that most of the infant feeding which the report deals with was carried out with roll-dried milk.

16 to 42 days, of scurvy. The control animals were well at the end of the test.

Why should roll dried milk differ from spray dried milk in its antiscorbutic value?

In the roll dried process the milk is subjected to heat for a matter of seconds and comes off the roll still steaming. It is exposed to oxidation under heat for a comparatively short time. In the spray dried process the milk is divided into minute particles and exposed under ideal conditions to oxidation by the drying agent (heated air). Furthermore, it drops in powdered form to the floor of the drying chamber, where it remains, under the influence of heat and air exposure until the batch of milk has been dried.

McClendon¹¹ describes a method of spray drying milk in which the antiscorbutic vitamin is preserved through the use of flue gas, in which the amount of air is reduced to a point where some carbon monoxide persists, in order to prevent the presence of oxygen.

It should be made plain that the antiscorbutic vitamin resists both heat and oxidation in a strongly acid medium as it does not in a weakly acid medium, such as milk. It is, therefore, preserved in great part in the juices of acid fruits, in which the vitamin is normally present in large quantity (orange, lemon, but not lime)¹², and in tomatoes.

Givens and McClugage¹³ prepared a spray powdered orange juice by the method used in spray drying milk, without the loss of antiscorbutic properties, and report¹⁴ that the powdered orange juice was still effective in its antiscorbutic properties two years after dehydration.

The absence or insufficiency of the antiscorbutic vitamin in the dietary may not be great enough to produce definite symptoms of scurvy, but the importance of this substance may be far reaching in another direction. The work of Percy Howe has shown that one of the results of a diet deficient in the antiscorbutic element is a susceptibility to infection, and our own work (unpublished) suggests that a deficiency in the antiscorbutic vitamin, not great enough in the normal animal to provoke symptoms of scurvy, may precipitate such symptoms of scurvy when the animal is subjected to bacterial infection or intoxication. The English work on infant feeding with dried milk products fails to furnish data with reference to the frequency of infection in children fed on dried milk, as compared with raw milk.

After all, however, a discussion of the experimental evidence of the preservation of the antiscorbutic element in the drying of the milk is more or less academic, since (to quote Jephcott and Bacharach), "It is a question how far such experiments (guinea pigs) are applicable to infant feeding. . . . It should be rec-

ognized, however, that whilst such dried milk (roll method) is apparently equal to raw milk in antiscorbutic value, neither is rich in antiscorbutic vitamin, and where infants are only taking small quantities of milk, or are upon a diet which is mainly farinaceous, the addition of a little fruit juice is not only desirable but essential."

From a practical standpoint, then, no diet should depend upon milk, raw or dried, for its antiscorbutic element. This substance should be supplied from the sources known to be rich in it, such as orange juice.

THE BACTERIOLOGY OF DRIED MILK POWDER.

The report of the British investigators of dried milk includes a thorough investigation of the bacteriology of the subject. Their findings justify the conclusions:

1. That drying milk by the roll process leads to the destruction of a large percentage of the bacteria present, in certain cases to almost complete sterilization. Spore-bearing bacteria and resistant organisms, like the tubercle bacillus, survive the process.

2. Drying by the spray method does not affect to a similar degree the number of bacteria present. Pasteurization is resorted to preceding this method of drying, the lowest counts being found immediately following this stage (pasteurization).

3. "It is clear that the processes used in drying milk largely reduce the number of bacteria present, but do not give an absolutely sterile product."

4. Tubercle bacilli were added to milk which was then dried by the roll process. Guinea pigs were inoculated with the dried product. "The course of the disease, produced by these bacilli, was very much slower than that of the disease produced in guinea pigs inoculated with the same amount of untreated tuberculous milk. The tuberculosis produced by the heated bacilli was *latent* or *occult* for some four weeks." Feeding young rabbits on oats and the dried tuberculous milk made up with sterile water, led to no evidence of tubercular infection. It is concluded that, "Drying the milk does at least lessen the danger of infection from tuberculous milk."

5. "Many of the bacteria found in preserved milk as found on the market, owe their presence to a process of *recontamination*."

"Preserved milk is sometimes handled by persons who have previously handled the fresh milk; it is also exposed to the same sources of contamination (hands, clothing, soil, dust, water used to clean vessels, etc.), as the fresh milk. These facts are sufficient to account for the great resemblance between the bacterial flora of fresh and of preserved milk."

"The distribution of bacteria in the milk

before, during and after treatment, indicated clearly that *many of them which had disappeared* while the milk was heated and protected from the access of dust, and from contact with contaminated articles, *had reappeared* in the final stages of preparation when no longer protected against contamination."

Frequent sources of contamination were the powder mill used following roll drying, the sifting following spray drying (for the purpose of homogenizing the milk powder), and the packing.

"The absence of organisms of the *B. Coli* type in such a large proportion of the samples is also satisfactory." "The frequency of streptococci is . . . surprising. Their presence in the dry milk was probably due to the reinfection from the air, etc., during the process of powdering and packing." . . . "The entire absence of evidence of tuberculosis is satisfactory."

6. Bacteria in dried milk are slowly reduced in number on keeping, in sharp contrast to the picture in liquid milk in which bacteria rapidly multiply.

It is evident from the findings recorded above that milk drying should do away almost completely with pathogenic bacteria present in the milk when drawn, *e.g.*, streptococci, and general use of dried milk should do away with this type of milk-borne epidemics.

It should be possible to evolve mechanical devices which should protect the milk powder from contamination during powdering and packing. Adaptation of machinery already on the market, and used for handling food products, should result in the transfer of the milk from the drying device to the final sterile container without recontamination.

The average bacterial count of daily samples of reconstructed milk from all of the (American?) plants of the principal spray-drying milk company in the world last year was 6000 bacteria per cubic centimeter. This is the count of highly certified milk.

The changes produced in milk by powdering:

A. Slight loss in *acidity*.

B. Soluble *salts* of calcium are converted into insoluble salts, affecting the action of rennet.

C. *Lactose* is unaffected.

D. *Albumin* and *globulin* are partly coagulated. *Caseinogen* is not coagulated, but all observers seem to agree that it is more readily digestible after heating.

E. Chemical changes in the *fats* are slight; possibly a slight degree of oxidation occurs. The *lecithins* are altered, but little is known as to the exact changes.

The fat globules of reconstituted milk are generally larger than those of fresh milk.

F. *Ferments* are destroyed. Lane-Clayton¹⁶ says: "Although . . . the ferments of

cows' milk are destroyed in the process of drying, this loss is of no importance as regards the value of dried milk as a food for infants."

G. *Solubility*. "Porcher"¹⁷ points out that various dried milks differ in their capacity for reconstitution. A milk powder made by the process of spraying milk into hot air, gives a very homogeneous fluid with little separation of fat, whilst those made by the hot roller process show a tendency to the formation of oily drops on the surface of the reconstituted milk.

H. *Rennet reaction*—The curd produced by rennet in reconstituted dried milk is flocculent and finely divided, in contrast to the firm, tough and cohesive clot produced in raw milk. Sommerville¹⁸ considered that the modification of the casein, as indicated by this test, was one of the reasons why dried milk was so useful in the feeding of babies. Porcher¹⁷ states that reconstituted dried milk coagulates with rennet just like human milk, and cannot be made into cheese because of the character of the curd.

KEEPING QUALITIES OF DRIED MILK.

Full cream milk powder in tins will keep for three months or longer. Skimmed milk powder in tins will keep for a year or longer.

The full cream milk powder tends to become tallowy in flavor after long keeping, the change apparently depending upon oxidation of the fat. This change occurs earlier in spray dried powders, in which oxidation plays a more important rôle than in the roll dried powders.

Exposed to air, the casein becomes gradually insoluble.

VALUE OF DRIED MILK AS A FOOD.

One of the absurdities of the feeding of our troops, both at home and abroad, during the war, was that while England was importing thousands of tons of dried milk from this country, our own troops were supplied condensed milk, less palatable, more difficult to transport because of its water content, and a less desirable article of food, as will be shown in the following quotations from the reports of the pediatricists who were consulted by the British Commissioners for the study of dried milk.

Another interesting side light on this subject is the story of the rise and fall of Sanatogen. Most of us remember this highly advertised patent food of German origin, backed by the testimonials of famous men and women, including, among others, Sir Gilbert Parker. It was the opinion of the writer that this expensive substance consisted in large part, or wholly, of skim milk powder. When the war cut off the importation of this food from Germany, the American agents, who took over its manufacture, immediately sought bids from

dried milk manufacturers on a supply of 30,000 pounds of skim milk powder per month.

The report of the British investigation of dried milk for *infant feeding* contains the following conclusions:

"I am of the opinion that when breast feeding is impossible dried milk is a very valuable food for infant feeding. It is, perhaps, when all considerations are taken into account, one of the most generally useful of all of the available preparations of cows' milk. . . . This statement applies to dried milk of recent manufacture made carefully under hygienic conditions from a good quality of cows' milk. It does not necessarily apply to a dried milk of poor quality made under dirty conditions, or carelessly packed and stored, or which has been kept for so long a time as to have deteriorated materially in solubility or flavor."

"*Healthy Infants.* Dried milk can be used successfully in the rearing of sound and healthy infants. For this purpose it is probably no better than, and may be slightly inferior to pure, clean milk," etc.

"*Sickly Children.* There is very strong evidence that a large proportion of children who are marasmic, suffering from digestive troubles, vomiting, etc., take dried milk very well, and show remarkable progress. Even in cases in which the condition has been most grave, the results have been admirable. In such conditions it is frequently tolerated better than ordinary cows' milk. A few cases of intolerance to dried milk have been observed, but these cases seem fewer with dried milk than with other preparations of milk," etc.

"*Diarrhoea.* Several authorities consider that it is undesirable to give dried milk when diarrhoea exists. I think this opinion is probably justified in cases of extreme diarrhoea, but in milder cases dried milk seems to be well borne and often leads to a rapid improvement. In cases of diarrhoea, it may be desirable to give dried skimmed milk for a time instead of the full cream or half-cream variety."

"Dried milk has been given in several towns, at infant clinics, with a view to avoiding summer diarrhoea. Mandel considers that the value of using milk powder with this object has been strikingly demonstrated in the case of Rotherham. He believes that the incidence of summer diarrhoea bears a distinct relationship to the bacteriological contents of the milk, and that the investigations at the Rockefeller Institution in New York show that the disease is excessive among infants fed on food rich in carbohydrates, such as condensed milk. He thinks, therefore, that it is not only the bacteriological purity of dried milk which accounts for a lower incidence from summer diarrhoea among infants fed on it, but also that its composition approximates more closely to human milk."

CAUSES OF SUCCESS OF DRIED MILK.

Under the above caption the British Report makes the following statement:

"The physical and chemical changes produced by the processes used in the preparation of dried milk so alter its character that it is better borne by the infant's stomach than ordinary cows' milk, whether raw, boiled or sterilized. The dried milk is easily and completely assimilated. It is palatable. Millard says the babies like it and do not relish any change. The effect on nutrition is very marked. Where weight-charts have been kept regularly, they show a steady advance, and the child's flesh is firm and solid, not flabby, and the general tone and condition good."

"The fact that dried milk made by certain processes is not entirely soluble on reconstitution does not affect its digestibility or only for good. Dr. Lapage told me that his experience showed that it did not matter for infant feeding, and others have come to the same conclusion."

CONCLUSION.

Little argument is needed to demonstrate the advantages which should arise from the elimination of the substance, i.e., water, which gives to milk its perishable quality.

Hygienically, the milk-borne epidemic, either originating from the milk as drawn (a), or from contamination during handling (b), should be done away with. The drying process should eliminate the organisms, such as streptococci, producing the first form of epidemic. The second form, as illustrated by typhoid, is dependent upon the multiplication of the original contaminating dose of bacilli in the fluid milk. The drying of the product makes improbable the successful multiplication of the bacteria or their wide distribution throughout the product.

Economically, all of the emergency procedures which are necessary in the handling of liquid milk would be done away with, refrigeration, special cars, breakable special containers, and most of all special delivery. It will be recalled that during the war it was found necessary to pay the milk drivers in New York City \$50 per week—\$2,600 per annum, and a percentage of the receipts, for the highly expert services required of them. The recent milk strike in New York only emphasizes anew the desirability, and perhaps necessity, of doing away with the emergency element which the perishable character of milk introduces into its handling.

A hidden cost of milk, which does not appear in the list of costs submitted, arises from the public inspection of the sources of supply, and the further laboratory investigation of the quality and cleanliness of milk as delivered. This latter cost, necessitated largely by the

tendency of milk to deteriorate in handling, could be in part done away with if the use of powdered milk were universal. The only inspection necessary would be the inspection at the source, and this could be made more rigid for less money than is now expended for the present double inspection, i.e., at the source and at the point of delivery.

The development of present-day apparatus for milk drying along indicated lines should make it possible for milk producers, individually, or in groups, to powder their own milk at the source, thus becoming independent, to a degree, of seasonal demands, and this should cheapen the price of milk to the consumer.

Aesthetically, the rumble and reverberation of the milk wagon in its nightly disturbance of the peace would be abolished, to the joy of the insomniac, and the better rest of the deposed milk driver and his family.

An important drawback to the universal use of milk powder is its price. It costs today, at retail, apart from the trouble of its preparation, more than liquid milk. When one considers the cost of the emergency features in the handling of liquid milk, which do not enter into the cost of powdered milk, one is puzzled to account for its retail price (70 to 79 cents per lb.), and further puzzled when one learns that the same milk powder sells in barrel lots at 33 to 35 cents per pound. Milk powder is slightly hygroscopic, and for retail purposes has to be put up in tin, but the cost of a tin container does not markedly add to the cost of most food products. It is possible that introductory advertising is an important factor in elevating the price. If so, wider use and competition should serve as correctives.

The physician should know all of the facts with reference to as important a food as milk, and should be the educator of the community with respect to the efficiency and advantages of methods for its preservation. He should be the advocate of drying as a method of preserving milk which, if universally adopted, would mark as important an advance in prophylaxis as typhoid inoculation or diphtheria toxin-antitoxin injection. He should know the limitations of the process, however, and should not recommend, as the exclusive food of a nursing, reconstructed milk from milk powder, without the addition to the diet of an anticorbatic agent, such as orange juice. He should further recognize that the reconstructed milk is as good a culture medium as fresh milk, and should therefore be prepared only at the moment when it is needed, and with rigid precautions as to cleanliness.

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CHRONIC FERMENTATIVE INTESTINAL INDIGESTION.

BY ISAAC RUDOLPH JANKELSON, M.D., BOSTON.

[From the Clinic of Dr. Paul Cohnheim, Berlin.]

IN 1901 Schmidt and Strassburger described a type of chronic diarrhoea characterized by light-colored stools, of sour smell and acid reaction, which contain a large quantity of undigested starch. Further investigations have determined this to be a clinical entity with well-defined course and symptomatology. The clinical recognition of this type of diarrhoea, and an understanding of the rationale of its treatment, is of great importance, not only in that it offers us a means of relief for this distressing condition, but that it allows of the possibility of prevention of the more serious forms of colitis which follow in its wake. Herein lies its significance to the practising physician.

The *pathology* of the disease is still somewhat uncertain. Schmidt demonstrated a mild catarrhal inflammation at the beginning of the large intestine in one case. Confirmatory observations are lacking. Clinically we are justified in considering fermentative intestinal indigestion as a mild colitis with involvement of the near-by ileum. It is by no means a functional disease of the large intestine, but must be looked upon as a symptom-complex of colonic disease, associated with hypermotility of the entire intestinal tract and an increased susceptibility of the intestines to the products of fermentation.

The fermentation occurs as a result of bacterial action. Bacteria normally infest the lower ileum and colon. If the intestinal content reaches the cecum rich in carbohydrates, the bacteria whose nourishment consists of carbohydrates thrive, increase in number, overgrow the putrefactive bacteria and, as a result, produce an excessive amount of gas. The disease is thus produced by the overgrowth of bacteria causing fermentation, regardless as to whether or not they are normal inhabitants of the intestinal tract. These bacteria will thrive and cause more fermentation as long as sufficient quantities of carbohydrates are supplied to them.

The secretions of the digestive tract contain no carbohydrates, thus the medium for the development of the fermentative bacteria comes entirely from the food ingested by the host. When no carbohydrates are ingested, or all ingested carbohydrates are absorbed before they reach the lower ileum, these bacteria are starved, diminish rapidly in number, and the fermentation subsides. But if food is constantly supplied, they gradually increase to the point where they irritate the colon and lower ileum, causing at first hypermotility and hypersecretion, leading later to more serious catarrhal conditions of the colonic mucosa. The clinical signs of colitis are present in every well-developed case of chronic fermentative intestinal indigestion.

The patient's *chief complaint* is usually persistent diarrhea. He has two to six movements daily, the stools being pasty in character, only rarely watery. The stool is of light color and sour smell. He complains also of rumbling meteorism and heaviness in the mesogastrium, which are relieved by the passage of gas. There are occasionally heartburn, a sense of pressure in the epigastrium, and palpitation of the heart. At times there is nausea. Vomiting is rare. Colicky pain occasionally occurs and, if present, is relieved by defecation. As the condition goes on he complains of lassitude, vertigo, headaches, insomnia; becomes irritable and unable to work. Later, well-pronounced neurasthenia develops. Vasomotor disturbances may occur. To these nervous manifestations Paul Cohnheim has given the name "enterosthenia." It is important to differentiate this type of secondary neurasthenia, as it can only be successfully combated by treating the underlying intestinal indigestion.

On *physical examination* we usually find but few signs, and these not very characteristic. Ordinarily the patients are fairly well nourished, at times somewhat anemic. The abdomen is usually distended and slightly tender on deep pressure. On palpation we often feel and hear gurgling in the cecum and ascending colon. The stomach often gives important evidence, such as achylia gastrica, hypermotility, ectasy, or an antecedent gastroenterostomy. Proctoscopic examination shows a moderate reddening of the mucosa of the sigmoid, with occasional spastic contractions of the musculature so that the tube is passed only with difficulty.

Examination of the feces furnishes the pathognomonic signs of the disease. Macroscopically the stool is light in color, pasty to watery in consistence and of a sour odor, which is due to acetic and butyric acids. On standing the stool becomes darker, spongy and foul smelling. The reaction of the stools is acid to litmus. Various undigested vegetables can be recognized in the stools. Mucus is either ab-

sent, or is present only in small shreds and in very small quantity.

The most characteristic picture is seen under the microscope, which shows a large amount of undigested vegetable matter of various sorts, and many microorganisms. The clostridium butyricum occurs in large numbers. If iodine is added to the specimen, we find large blue spots scattered throughout the field. These spots are in part due to free starch, in part to the coloring of clostridium butyricum. The appearance of a large quantity of free starch and clostridium butyricum is diagnostic. At times the slide, on the addition of iodine, takes a reddish stain due to the presence of erythro-dextrin. Intracellular starch is always present. Muscle fibers and fat are present only in small quantities.

The Schmidt fermentation test shows excessive fermentation. This test can be used for a quantitative determination of the amount of fermentation. A simpler test, one which with some experience is just as accurate, is the addition of iodine to a slide made of the stools. In this way the amount of free starch can be visualized.

An individual attack of flatulence is curable in from one to three weeks, but the tendency to recurrence persists for a long time, occasionally years. Dietetic errors must be avoided and the patient must live on a strict diet for at least six months. Spontaneous cures have been reported. In these cases we must suppose that for some unknown reason the susceptibility of the intestinal tract to the products of fermentation has diminished, or that the bacteria causing fermentation have lost their vitality. Other cases go from bad to worse and develop severe chronic colitis, some never attaining an ultimate cure. The quantity of free starch found in the stools is an index of the severity of the case. The disappearance of free starch from the stools is a good prognostic sign.

The *treatment* must of necessity be largely dietetic. The theory depends upon starving out the bacteria causing fermentation or at least restricting their food supply, and thus lessening their activity. In so doing we re-establish the equilibrium of the intestinal flora. Even when the treatment is carried out to a successful end, the excessive susceptibility of the intestinal tract to products of fermentation, if once established, will persist. To overcome this we have no remedy, except prolonged training or education of the intestines. This training of the intestines is important if we want to avoid recurrences. Great patience is required in order to carry it through.

The dietetic treatment begins either with total starvation (allowing only unsweetened tea and brandy) or in mild cases with abstinence from all carbohydrates. In severe

cases, and especially those complicated by achylia gastrica, the patient is starved for two to three days. The mild cases can be given a diet of meat, fish, eggs, bouillon, gelatine, butter, beef juice and unsweetened tea. Under this diet the starch and the clostridia butyrica show a tendency to disappear from the stools. The diarrhea diminishes and the patient begins to feel better. This diet is kept up for eight to fourteen days. During this time the patient is kept in bed at rest and the intake of fluids is restricted. After this the patient is given gradually increasing quantities of carbohydrates, provided the stools show no free starch. At first, carbohydrates which are absorbed in the small intestines, such as maltose (not lactose), dextrinized foods, wheat, fine flour, rice, sago, tapioca, are given. Stale bread, zwieback and toast are usually well borne and can be given in small quantities. Milk and all foods containing cellulose, such as vegetables and fruits, are prohibited. This diet is continued until all signs of fermentation disappear. Usually one to two weeks of this diet suffices to cure an attack of fermentation. By this time the stools diminish to one or two a day, of normal color, formed, without free starch, and all subjective symptoms subside. In very mild cases and those which have to continue their daily work, we can begin with this diet, although at times failures will be encountered, where a few days' starvation will cure the attack.

After the attack is over we gradually increase amounts of carbohydrates and, later, add some celluloses in order to educate the intestines to their utilization. During this time frequent examination of the stools should be made, if we are not to overestimate the power of the intestines to utilize and absorb carbohydrates. In this phase of the dietetic treatment progress is slow, and months must elapse before raw vegetables and fruits can be given. Well-cooked and mashed vegetables should be tried before raw ones are added to the diet. In some cases cellulose can never be utilized without the onset of diarrhea. Special care must be given with reference to milk, which in most cases is not well borne. Each case must, to a certain extent, be worked out as an individual problem.

Slow eating and thorough mastication should be insisted upon. Frequent small meals are to be preferred to the conventional three meals a day. If during the course of the treatment recurrence of the diarrhea, with excessive fermentation and starch in the stools should occur, it is proof that we have progressed with our dietetic measures too rapidly, and must start over again. In some cases, if cellulose is added to the diet too early, the patient becomes constipated, due to spasm of the colon.

All the other therapeutic measures are of secondary importance. At the onset of the treatment a brisk cathartic, such as magnesium sulphate, can be used, but only once. Astringents are to be avoided, except in cases where the general debility and discomfort of frequent defecation is burdensome. In these cases bismuth or calcium salts can be used singly, or in combination with charcoal. The latter drug is said to relieve symptoms by the absorption of gas. Opium is of distinct harm, causing constipation with an increased amount of fermentation. Belladonna (or atropine) is the drug par excellence, relieving spasm and diminishing intestinal secretions. The following prescription has served well. Extr. Belladonnae, 0.2; Bismuthi salicylatis, 5.0; Calci phosphorici, Carbonis animalis aa, 20.0. One teaspoonful, three times a day, after meals.

Cases complicated by achylia gastrica, or by previous gastroenterostomy, require special care. In these cases gastric digestion is largely lacking and therefore the intestinal tract is more apt to suffer; in consequence the treatment must be prolonged.

CONCLUSIONS.

1. Chronic fermentative intestinal indigestion is clinically a mild colitis.
2. Overgrowth of the bacteria causing fermentation is the underlying cause of the fermentation and flatulence.
3. The accompanying neurasthenia is secondary and can only be cured by treating the primary disease.
4. The quantity of free starch in the stools is an index of progress in treatment.
5. The treatment is chiefly dietetic.

THE CARE OF PREGNANCY AND LABOR IN PATIENTS PREVIOUSLY DELIVERED BY CÆSAREAN SECTION.

By JOHN T. WILLIAMS, M.D., F.A.C.S., BOSTON.

Assistant Visiting Surgeon, Boston City Hospital;
Assistant in Gynecology, Harvard University.

THE increasing frequency with which Cæsarean section is performed for temporary indications such as eclampsia, placenta prævia, ovarian cyst blocking the pelvic canal, primiparous breech, etc., has given rise to a new obstetric problem: the care of pregnancy and labor in patients previously delivered by Cæsarean section but in whom no present indication exists, except the scar of the former Cæsarean. With the report of cases of rupture of a Cæsarean scar, the epigram "Once a Cæsarean, always a Cæsarean," found ready, almost hasty, acceptance by many obstetricians. The writer's experience, both with the re-

peated Cesarean section and with a series of ten patients safely delivered one or more times by the natural passages after a previous Cesarean, has led him to believe that such a maxim is unscientific and unjustified. The future of a Cesareanized patient should be decided upon the merits of the individual case, guided by rules based upon clinical experience and experimental evidence, rather than determined by a specious but unsound epigram.

In addition to the temporary indications above referred to, there is a distinct class of cases where Cesarean section is performed in the absence of a distinct pelvic indication because the patient, having lost her first baby after a difficult operative delivery,—usually a dry labor or primiparous breech,—both the obstetrician and the patient desire to take no chances in the second labor. This indication may be unsound, but three of my cases were of this class, where Cesarean in the second pregnancy (performed by another obstetrician) was followed in the third by easy, normal labor.

The experimental work of Mason and myself¹ showed that in animals a perfectly healed scar would withstand any strain which could be borne by the muscle itself. J. Whitridge Williams,² Loece,³ and others have demonstrated that in a perfectly healed Cesarean scar regeneration of the muscle fibers takes place and the appearance of the scar is histologically equal to that of the rest of the uterus, but each reported the occurrence of defective scars in which rupture had taken place.

Holland⁴ has collected 92 cases of ruptured Cesarean scar from the literature. Of these, 36 ruptured during pregnancy, and 48 during labor (the rest not stated). The same writer collected reports of 1,605 Cesareanized women from 25 British clinics. Of these, 1,103 were followed up, among whom 487 became pregnant again. Delivery by the natural passages occurred in 78; rupture of the scar in 18; repeated Cesarean section in 352; miscarriage in 47; and the remainder undelivered at the time of the report. In other words, he found that rupture of the scar in subsequent pregnancies occurred in 4%, but that nearly as many ruptures took place during pregnancy as during labor.

The mortality of Cesarean section is variously estimated by different writers, ranging from 2 to 4% according to Newell,⁵ to 10% according to J. Whitridge Williams.⁶ If the incidence of rupture of the scar is lower than the mortality of Cesarean section, it would seem logical to allow these patients, where there is no other indication for Cesarean, to go into labor and be delivered by the natural passages. It is of course important, however, that all such patients should be kept under the closest observation during pregnancy and delivered in a

well-equipped hospital under the personal attendance of an obstetrician qualified to do abdominal surgery.

My personal experience has confirmed this opinion. I have performed sixteen repeated Cesarean sections, in only one of which was any considerable thinning of the scar found, and in this one instance the thin place corresponded to an area alongside the old scar where an interstitial fibroid one and one-half inches in diameter had been removed at the previous Cesarean.

I have delivered ten patients (two of them more than once) by the natural passages, following Cesarean section, without untoward result. An abstract of these cases follows.

CASE 1. Mrs. J. S. First labor terminated by Cesarean section at the hands of a general surgeon after failure of forceps by her family physician. Evidently a case of contraction ring. Pelvis normal. Second pregnancy, two years later, terminated by normal delivery of child. Placenta, however, adherent to under surface of Cesarean scar and required manual extraction. Scar felt to be slightly thinned at upper end but gave no trouble. Third and fourth labors also normal. Weights of these three babies, $7\frac{1}{2}$, $9\frac{1}{4}$ and $10\frac{1}{4}$ pounds, respectively. Again delivered normally of 10-lb. baby, January 13, 1922.

CASE 2. Mrs. I. L. First labor terminated by Cesarean section for relative indication; slightly contracted pelvis of justo-minor type, inadequate pains and exhaustion. The second labor was characterized by more effective pains, and delivery was successfully accomplished by high forceps. First and second babies each weighed $6\frac{1}{2}$ pounds. Third labor premature at six months, spontaneous. Fourth labor normal; 5-lb. baby lived. Fifth labor premature at six months. Sixth labor normal at term; $6\frac{1}{2}$ -lb. baby lived.

CASE 3. Mrs. G. F. L. First pregnancy terminated by Cesarean section by another obstetrician for dermoid cyst of ovary obstructing pelvis. Cyst removed. Measurements normal. Second labor terminated by mid forceps (Scanlon). Baby weighed 7 lbs. 6 oz. Labor and convalescence without untoward incidence.

CASE 4. Mrs. J. E. D. First labor ended in high forceps. Baby died on sixth day of intracranial hemorrhage. Second pregnancy terminated by Cesarean section at the hands of another obstetrician. In her third pregnancy patient desired to avoid Cesarean section and as the pelvis was of normal size was allowed to go into labor and was delivered normally of a $7\frac{1}{2}$ -lb. baby.

The above four cases have been previously reported in part.⁷

CASE 5. Mrs. M. C. First pregnancy terminated in Cesarean section for placenta praevia at St. Margaret's Hospital. Second labor: entered Boston City Hospital, at 5 p. m., December 23, 1920. Os half dilated. Foetal head in the pelvis. Measurements: E. C. 18½ c.m., I.S. 24 c.m., I.C. 27 c.m. Determined to wait until fully dilated and terminate by low forceps, which was accomplished without difficulty. Mother and baby made an excellent recovery.

CASE 6. Mrs. T. P. First pregnancy terminated by Cesarean section for placenta praevia in Boston City Hospital, March 2, 1919. Measurements: E. C. 18 c.m., I.S. 21½ c.m., I.C. 26½ c.m. Second pregnancy normal. Delivered, May 31, 1921, after a five-hour labor, by mid forceps. Convalescence complicated by slight uterine sepsis, but recovery followed. Baby did well.

CASE 7. Mrs. B. W. First labor in 1914, difficult, ending in high forceps and stillbirth. Second pregnancy terminated by Cesarean section in the hands of another obstetrician, two years later. Consulted writer in third pregnancy. All measurements normal. July 28, 1920, delivered normally of 7¼-lb. baby. Convalescence of mother and baby normal.

CASE 8. Mrs. E. S. First pregnancy terminated by Cesarean section for mitral regurgitation with decompensation. Two years later she again became pregnant but absolutely declined Cesarean section. On April 21, 1921, she entered hospital in labor, being about two weeks before term. The head was found to be on the perineum and the patient easily delivered herself of a 5½-lb. baby. Mother and baby made excellent recoveries.

CASE 9. Mrs. F. Y. First labor in 1915, breech, operative, stillborn. Second pregnancy terminated by Cesarean section at the hands of another obstetrician, in 1916. Pelvic measurements normal. December 26, 1920, she was delivered after an eight-hour labor of a 9-lb. 11 oz. baby by low forceps. Normal convalescence.

CASE 10. Mrs. T. T. First pregnancy terminated by Cesarean section for ovarian cyst obstructing pelvis. Cyst removed. Normal measurements. July 17, 1921, she went into labor. After about seven hours of unsatisfactory pains, the head being low and the os half dilated, labor was completed by manual dilatation and low forceps. The baby weighed 8 lbs. 8 oz. and did well. The mother's convalescence was somewhat prolonged by subinvolution, but eventually satisfactory.

To summarize briefly: In two cases the indication for the Cesarean was an ovarian tumor obstructing delivery, which was removed; in two

more it was placenta praevia in a primipara; in two more it was failure of the natural forces to effect delivery. In three instances Cesarean had been done because of previous stillbirth, without any other indication. In the remaining case, the cardiac patient, some criticism may fairly be made of allowing such a patient, even at her own request, to go into labor. The easy character of her labor and the excellent recovery, however, justify the judgment in this instance.

In connection with the above ten successful cases, two others, who were given the test of labor after a previous Cesarean but failed to accomplish delivery by the natural passages, are of interest.

CASE 1. Mrs. R. C. Pelvis slightly just-minor. Two previous Cesareans, the first after the failure of test of labor, the second by election. At the patient's earnest request, she was allowed a test of labor in the third pregnancy, but as the head failed to pass the brim after two hours of second stage pains she was again delivered by Cesarean. The scar was found intact in spite of the strain to which it had been subjected.

CASE 2. Mrs. I. F. Cesarean section, October 25, 1918, after forceps failed to effect delivery. Measurements: E. C. 21 c.m., I.S. 28 c.m., I.C. 30 c.m. Baby weighed 11 lbs. Dystocia believed to be due to excessive size of child, so patient was carefully dieted in second pregnancy and allowed to go into labor. On January 30, 1921, patient entered hospital in labor. Although the second baby weighed only 8 lbs., six hours of hard labor failed to engage the head, and the patient was again delivered by Cesarean section. The old scar showed no thinning whatever. Convalescence was normal.

On the other hand, where there is a permanent indication for Cesarean section persisting in subsequent pregnancies, such as contracted or deformed pelvis, there is no justification for allowing the patient to go into labor, but elective Cesarean section should be the method of choice.

CONCLUSIONS.

1. Patients previously delivered by Cesarean section must always be delivered in a well-equipped hospital and attended by an obstetrician capable of doing abdominal surgery.
2. Where the indication for Cesarean section is a permanent one, such as contracted or deformed pelvis, elective Cesarean section should be performed.
3. Where the indication for Cesarean has been a temporary one such as placenta praevia, eclampsia, primiparous breech, ovarian or other neoplasms obstructing the pelvis, which

have been removed; or a doubtful one, such as a previous stillbirth without pelvic deformity, the patient may be allowed, under careful observation, to go into labor and be delivered by the natural passages.

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SARCOMA OF THE JAW, WITH CASE REPORT.*

BY HAROLD J. GIBBY, M.D., WORCESTER, MASS.

PRIMARY malignant disease of the upper respiratory tract is not uncommon, judging from the literature. Dunbar Roy¹ has reviewed the literature for the last two decades, to 1919, and has collected approximately 328 cases of sarcoma of the nasal passages, septum, maxilla, and accessory nasal sinuses. Several have been reported since his paper was published. Interest has centered largely in the method of treatment employed, and details of symptomatology and classification of the tumors were meager. One feature is of interest in connection with the case I am reporting; the rapidly fatal cases were either those in which severe surgical operations had been performed, or in which intercurrent disease was responsible. In no case was the progress rapid, due to the sarcoma.

Kyle² states that "Sarcoma of the nose and nasopharynx is not of frequent occurrence; has its origin in adjacent structures and spreads thence into the nasal cavity . . . is of slow development, and may occur at any age, but is more common before 40." "If the tumor is of rapid growth it is usually of small, round-cell variety . . . however, in this location, it is usually of large-cell variety and of slow growth; . . . Pain and deformity depend on location . . . being especially severe when the tumor originates in, or secondarily involves, the accessory sinuses."

My case differs in many respects from the classical pictures, and is of interest for that reason.

CASE HISTORY. A. B., age 14 years. Admitted (Memorial Hospital) November 30, 1921; died December 16, 1921. Diagnosis—Mixed-cell sarcoma of parotid region.

C. C.—Swelling of right cheek. **H. P. I.**—Patient has noticed a progressive swelling of right cheek five days. Has had a right lower molar tooth extracted about three weeks ago, and has had no pain in her jaw. **P. H.**—Chicken-pox, measles, occasional sore throat;

otherwise, always well, except for acute rheumatic fever last winter. No trouble with heart until last winter. School doctor advised removal of tonsils. **F. H.**—Negative for tuberculosis and chronic constitutional disease. Condition on Admission—Patient is a well developed, rather poorly nourished young, white girl, lying quietly in bed, not acutely ill. Right cheek markedly swollen, parotid gland outlined and tense with swelling. Mouth almost filled with slough. Patient complains of the swelling, but not of pain.

Physical Examination: Mouth—Tongue coated, large amount of slough in right cheek projecting forward and across tongue, and involving tissue posterior to right tonsil. Tonsils large and congested. Nose—No obstruction, no discharge. Neck—No enlarged lymph-nodes, thyroid not enlarged. Marked pulsation of large vessels. Heart—Apex beat very forceful and diffuse in fifth interspace 10 cm. from left mid-sternal line; enlarged down and to left, double murmur at apex transmitted to left axilla, systolic murmur at base. Rate 120, regular, muscle tone fair.

December 2, 1921—Incision and drainage; ether. Incision at angle of jaw; no free pus; culture taken, drain placed. Good ether recovery. Flaxseed poultices used for a few days. No drainage of pus. Slough enlarging rapidly, extending up behind tonsil.

December 5, 1921—Consultation, and patient transferred from Surgical to Ear, Nose and Throat Service. It was thought best to remove all of slough possible, to facilitate swallowing. Urine normal, except W. B. C. 3-8 per H. P. F., occasional R. B. C. White blood count 19,000. Sputum negative for organisms of Vincent's angina. Blood culture: no growth in four days. Operation—Under ether, as much of the slough was removed with curette and scissors as possible without exposing the vessels of the neck. Cautey used to check hemorrhage and destroy tissue not possible to excise. The growth extended internal and external to the ramus of the jaw, and included a large part of the buccal surface of the right cheek. Maxilla and antrum involved. Spicules of dead bone from the ramus came away with the necrotic material, and an area of bare bone 3 cm. x 5 cm. exposed.

December 7, 1921—W. B. C. 25,000.

December 7, 1921—Necrotic tissue has increased a little. Slight productive cough; pulse poor quality; rate 140, temp. 98.6. Some impairment of breath sounds throughout lower right lobe and about angle of scapula on left; no râles; frequent cough, especially when taking nourishment; liquid diet. Medication, digalen and caffeine. Complains of no pain in jaw; cramps in abdomen, probably due to Murphy drip (glycerose solution).

*Read before the Worcester District Medical Society, at Memorial Hospital, Worcester, Feb. 8, 1922.

December 8, 1921. Culture from necrotic area of mouth shows streptococci. X-ray right lung shows moderate peribronchial thickening extending from hilus upward toward apex and down toward diaphragm. Moderate infiltration is noted about the hilus, no definite consolidation. Left lung overshadowed by heart. Findings consistent with bronchitis; no definite pneumonia process made out. Heart appears enlarged, but no positive conclusion without 6-foot plate. Large amount of slough removed without anesthesia. X-ray report of December 1, 1921—Marked swelling of parotid region consistent with abscess; new growth cannot be ruled out, from x-ray standpoint. Right antrum should be taken during convalescent period. Histological—Tissue from cheek consists of masses of atypical fibroblastic cells, from spindle-cells to true tumor giant-cells containing from 2-6 nuclei; there is very little fibrin formation, and great numbers of cells are seen in mitosis. Throughout the tissue are numerous small, newly formed blood vessels, and portions of the tissue exposed externally consist of polymorphonuclear leucocytes and fibrin. Diagnosis—Mixed-cell fibro-sarcoma, acute, inflammatory. (R. Kinnicutt, M.D.)

December 12, 1921—Slough is increasing; patient comfortable, but coughs on swallowing. Lungs are clear. Pulse continues at about 140 and temperature is gradually falling. Slough removed daily.

December 13, 1921—X-ray treatment of right cheek. Radium to be used in 48 hours.

December 15, 1921—Severe hemorrhage at 8 A.M., about one pint of blood lost before checked. Pulse irregular and frequent. Vomited frequently. At 10 A.M., pulse almost imperceptible. Very restless. Pulse improved, but patient remained in poor condition all day. Local condition unchanged.

December 16, 1921—Patient died at 7 A.M. Cyanosis and dyspnoea marked from 1 A.M. to time of death, and patient semi-conscious. Death from toxemia and hemorrhage.

Autopsy: Anatomical Diagnosis—Sarcoma of right maxilla, adhesive pericarditis, mitral endocarditis, left auricular endocarditis, chronic passive congestion and metastasis of sarcoma to lung, metastasis to spleen and chronic congestion, cloudy swelling of kidney. Head not examined; no permission. A wound present at angle of jaw, right side. No swelling. Digital examination found wide opening with rough edges into right maxillary antrum with a tumor process involving this bone and the alveolar ridge adjoining it. The soft tissues about are sloughing. Malar bone and zygoma perforated from the disease. (Oliver H. Stansfield, M.D.)

Notes: The temperature, pulse, and respiration ran irregular courses, apparently without much relation to the physical condition. On

admission, T. 102.3, P. 130, R. 22. The highest temperature was 103 and the lowest 97. Pulse 100, 140, 160, and respiration 18 to 50.

SUMMARY.

A rapidly growing mixed-cell sarcoma in a child of 14 years, of seven weeks' history. (It was denied by the mother that any trouble existed prior to the tooth extraction.) Absence of pain, although the growth involved the antrum. Metastasis to lung, liver, and spleen. Terminal hemorrhage only.

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RELATION OF FAULTY CULTURES TO DIPHTHERIA MORTALITY.

By EDWARD SCOTT O'KEEFE, M.D., BOSTON.

Physician of the Children's Medical Out-Patient Department of the Massachusetts General Hospital.

IMMEDIATELY following the common use of diphtheria antitoxin, and after the more general use of bacteriological diagnosis, the mortality curve of diphtheria took a marked downward trend. As the value of antitoxin became more widely recognized by the profession and the public, this curve went lower still. Carey¹ states that, in the first decade of the last twenty years, the death rate of this disease fell from 43 per 100,000 to 15 and a fraction. He goes on to state that there has, however, been a fairly constant mortality rate during the latter ten years of this twenty-year period. With the advent of toxin-antitoxin administration it is not unreasonable to expect, in the near future, still further lowering of the diphtheria death rate.

In analyses of series of fatal cases, various writers have ascribed the unfavorable outcome of the disease to several factors. Among the commoner causes assigned are: (a) delay in sending for a physician; (b) inadequate dosage of antitoxin; (c) failure on the part of the physician to recognize the condition.

Failure to send for the physician within a reasonable time is a matter which can be remedied only by education and by publicity campaigns of the various public health agencies.

Inadequate dosage of antitoxin seems inexcusable considering the harmlessness of large doses of this therapeutic agent. This is a mistake which, I feel, is confined to a small group of the profession who have not kept in touch with current medical progress.

Emphasis has been laid by many upon these two sources of failure in the treatment of diph-

theria. The third factor in diphtheria mortality, *viz.*, the failure of the physician to make the diagnosis within a reasonable time, has received less attention. That a correct diagnosis should not be promptly made in the great majority of cases is occasion for speculation. The failure may be due to one of two causes: there may be a failure to suspect diphtheria from the clinical manifestations of the case, or what is, I think, more common, there may be a misinterpretation of the laboratory report upon the culture submitted.

There seems to be a fairly general impression that a negative culture and true diphtheria are rare, if not incompatible. Some physicians place great reliance upon a single negative culture, even in the face of the most obvious clinical signs of diphtheria. In short, there is a lack of appreciation of the significance of negative laboratory findings.

Regarding negative cultures from diphtheria cases, Kolmer² states that twenty per cent. of the primary cultures as *ordinarily* taken, are negative in *genuine* diphtheria, whereas, subsequent cultures in these same cases, will be positive. These figures are taken, presumably, from a series sent to the laboratory by a variety of practitioners and represent the average of their work.

Why should one out of every five diphtheria cases have a negative primary culture? The explanation is simple. These cultures are negative because a fair sample of the offending organisms has not been obtained by the clinician for implantation on the culture material. The diphtheria bacilli will not be secured by careless methods of culturing the throat. Regarding the site of the bacilli in diphtheritic membranes, A. Bleyer³ says, that the presence of the organisms in, or on, or beneath the membrane appears to be largely haphazard and accidental, but as the membrane forms and destroyed cells are caught up in the exuded fibrin, these bacilli are very likely to be enmeshed, and may be sought in nests or clusters which have multiplied *in situ*, as on any suitable medium. He further states that in securing material for his examinations it was customary to scrape under the edge of the membrane, thereby breaking through the arcades of membrane by which the diphtheria patch is customarily attached to the mucosa.

In this connection, I think, it is a not uncommon idea that if the swab is rubbed on the surface of the membrane the organism will be obtained. That the organism can be consistently found only within the membrane itself is a fact not generally recognized. To penetrate the substance of the membrane the swab may be introduced under the edge of the membrane, as indicated in the above quotation.

That there is a definite personal equation in

the procedure of culture taking is well shown in the records of any laboratory receiving specimens from a large group of practitioners.

CONCLUSIONS.

One of the factors in delay of diagnosis of diphtheria is the failure to recognize that, unless cultures are properly taken, laboratory diagnosis will not be reliable.

No amount of care or skill on the part of the bacteriologist can compensate for faulty technique on the part of the practitioner in securing a fair sample of the organisms existing in the membrane or exudate concerned.

Twenty-four to forty-eight hours' delay in the administration of antitoxin frequently results, owing to reliance placed upon faultily taken cultures.

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- ¹ Carey, R. W.: Jour. A.M.A., 77, 668, Aug. 27, 1921.
- ² Kolmer, J. A.: Infection, Immunity and Specific Therapy, Phila., 1917, 2nd edit., p. 760.
- ³ Bleyer, A.: Am. J. Dis. Child., Vol. xx, Nov., 1920, p. 448.

AUTOGRAFTING OF THE OVARY.

By JOSEPH H. MEZER, M.D., BOSTON,

Senior House Officer, Carney Hospital.

[From the Service of F. W. Johnson, M.D., Carney Hospital.]

In young women, after removal of the ovaries, nervous symptoms are apt to be severe and persist for a very long time.

Autografting will in a very large percentage of these cases entirely ward off these nervous symptoms or modify them to a great extent. If the ovary, where the tubes have been removed, is wholly or in part left with its normal supports, grafted into the uterus, buried in the broad ligaments or underneath the parietal peritoneum, patients often complain of pain, or changes may take place in the graft, requiring a secondary operation.

When the ovary in whole or in part is buried under the skin just within the anterior superior spine of the ileum, as was done in the following case and in several others, it is where it can be easily observed and within easy reach should any disturbance occur.

After removing the ovaries they are put in warm normal salt solution until the abdominal operation is completed and the incision closed.

Then as much of the ovary as looks normal and is wanted can be placed under the skin just inside the anterior superior spinous process of either ileum.

After transplantation, where the uterus is left, the ovary remains unchanged from four to six months. During this time the patient has the symptoms of the menopause.

After a while it becomes active, somewhat enlarged and painful. The symptoms of the menopause subside and menstruation reappears. Menstruation is always irregular. Often,

without knowing it, a small piece of ovary is left within the abdomen, but if menstruation occurs as a result of this it will appear within two months after the operation, too short a time to be from a graft.

If menstruation does not appear, symptoms of the menopause occur, showing, as has been pointed out, that it is *suppression of menstruation* which causes the symptoms of the change of life.

January, 1922. Has menstruated four times in past fourteen months. First menstruation appeared four months after the autografting. The first three times the flow lasted four to five days. No pain. The last time the flow lasted twelve days. Each time just before menstruation occurred there was swelling and tenderness where the piece of ovary had been buried. During the four months following the operation and up to the time of the first menstruation, she was troubled greatly by "hot flashes and sweating." Menstruation wholly relieved these nervous symptoms.

Case No. 3810. Age 21. White. Was admitted to the Carney Hospital on the Gynecological Service October 11th, 1920. Her chief complaint was menorrhagia and metrorrhagia with sharp pains in left ovarian region. Family history is negative except that her mother died from shock.

Past History: Appendectomy and tonsillectomy were done seven years ago, otherwise negative.

Catamenia: Menstruation commenced at the age of thirteen. Always regular every five weeks, lasting seven days, very painful in character and with a profuse flow. Last regular period July 16, 1920. Previous period June 24, 1920. Severe dysmenorrhea during first two or three days of the flow.

Marital History: Married three years. One child living and well, two years old. Instrumental delivery. Normal puerperium. No miscarriages.

Present Illness: Patient states that her period in August came one week late, lasted a week, then stopped for four days, then started again and continued to flow for a few days. Her period in September was a few days late and she has flowed profusely for the past three weeks. Complaints of a sharp intermittent pain in the left lower quadrant. This pain has been present for the past six months. This pain has been present almost continually for the past three weeks and became so severe of late that she was obliged to give up her housework. There is also a profuse bloody vaginal discharge. No dysuria, nocturia or frequency. Appetite is fair. Bowels are irregular. Suffers from headache frequently.

Physical examination: Patient is well developed and well nourished. Pupils are equal and

react readily to light and distance. Conjunctivae are clear. No glandular enlargement or adenopathies. No rigidity of neck. No opisthotonus. Throat is negative. Tongue protrudes in median line, is clean and moist with no tremor. Thorax of equal symmetry and expansion. Lungs: Percussion note is good and no râles heard. Vocal and tactile fremitus is normal. Spoken and whispered voice sounds are normal. Heart: Apex beat is palpable in fifth interspace, no murmurs heard, and sounds are of good quality and rhythm. Abdomen: Lax. There is a moderate amount of tenderness on pressure over the sigmoid. Percussion note there is tympanitic. No spasm or rigidity. Kidneys, liver and spleen are not palpable. Extremities are normal. Knee jerks are present and equal. No Babinski; or Kernig sign. Skin is clear. Blood Pressure: 130-78. Urine examination (noncatheter specimen): Reaction acid. Specific gravity 1015. Albumin: Large trace. No sugar. Color, bloody. Sediment shows a large amount of fresh blood, few pus cells, a number of calcium oxalate crystals and a few squamous epithelium cells.

Vaginal Examination: A mass on left side of the pelvis. Uterus freely movable.

Rectal Examination: A cystic ovary is palpable on the left side.

October 15, 1920. Operation.

Gas Ether Anesthesia.

The cervix was dilated and the uterine cavity thoroughly curetted but very little hyperplastic tissue obtained. A right rectus abdominal incision was made and peritoneal cavity opened.

The right fallopian tube was found adherent to the posterior surface of the broad ligament. This tube on palpation presented hard calcareous-like deposits near its uterine end. The left tube was adherent to the posterior surface of the broad ligament. Both ovaries were cystic. Left one contained a small rim of healthy ovarian tissue.

Double salpingo-oophorectomy was done. No stones were felt in gall-bladder. Right kidney small and very movable. Left kidney small and quite movable. No adhesions underneath appendix scar. Abdomen closed in four layers. The rim of healthy tissue of the left ovary was transplanted under the skin just inside of the anterior superior spine of the right ilium.

Post-operative Diagnosis: Chronic salpingitis; cystic ovary.

Pathological Report: F. H. Mallory, Pathologist. Chronic salpingitis; simple cyst of ovary.

Patient made a good ether recovery and an uneventful convalescence.

Discharge Note: Uterus is in good position, no sensitiveness anywhere in pelvis. Abdominal incision well healed. No areas of tenderness or induration.

LEGISLATIVE MATTERS.

THE following bills have been introduced: House, No. 1577, substituted by the House for House, No. 1554. April 17. Resolve providing for a Special Commission to investigate and report upon the Need of Financial or Other Aid to Physically Handicapped Citizens.

Resolved, That a special commission is hereby established, to consist of the commissioner of public welfare, the chairman of the industrial accident board, the director of the commission for the blind, and the director of vocational education, to investigate and report to the general court, not later than the second Wednesday in January next, the result of its investigations, together with such recommendations for legislation upon the subject matter contained in house documents three hundred and sixty-nine and three hundred and seventy of the current year as may be advisable.

The commission shall consider and report in particular a definition for "physically handicapped citizens" to include only such citizens as have been seriously maimed or are crippled, congenitally or otherwise, to such an extent as to be definitely handicapped in obtaining employment, and as to the number of citizens in the commonwealth coming within such definition, and their need for financial aid.

Reported by the Committee on Public Health. Senate No. 427. An Act providing that the Department of Mental Diseases shall hereafter be known as the Department of Mental Health, and relative to its Powers and Duties.

Section 1. The department of mental diseases shall hereafter be known as the department of mental health and the commissioner of mental diseases and the associate commissioners of mental diseases shall hereafter be respectively known as the commissioner of mental health and associate commissioners of mental health.

Section 2. Chapter nineteen of the General Laws is hereby amended by striking out the word "diseases" in the title of said chapter and inserting in place thereof the word "health."

Section 3. Section one of said chapter nineteen is hereby amended by striking out the word "diseases" in the first and second lines and inserting in place thereof, in each case, the word:—health,—so as to read as follows:—*Section 1.* There shall be a department of mental health, consisting of the commissioner of mental health and four associate commissioners. The commissioner and at least two associate commissioners shall be physicians and experts in the care and treatment of the insane.

Section 4. Section one of chapter one hundred and twenty-three of the General Laws is hereby amended by striking out the word "dis-

eases" in the third and fourth lines and inserting in place thereof in each case the word:—health,—so as to read as follows:—*Section 1.* The following words as used in this chapter, unless the context otherwise requires, shall have the following meanings:

"Commissioner", commissioner of mental health.

"Department", department of mental health.

"Institution", hospital or other institution, public or private, under the general supervision of the department.

"Judge", judge or justice.

"Residence", residence or place where found.

"State hospital", state hospital, state school, state colony or other state institution under the control of the department.

"State", state, territory, or dependency of the United States.

Section 5. Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section three the following new section:—*Section 3A.* The department shall take cognizance of all matters affecting the mental health of the citizens of the commonwealth, and shall make investigations and inquiries relative to all causes and conditions that tend to jeopardize said health, and the courses of mental disease, feeble-mindedness and epilepsy, and the effects of employments, conditions and circumstances on mental health, including the effect thereon of the use of drugs, liquors and stimulants. It shall collect and disseminate such information relating thereto as it considers proper for diffusion among the people, and shall define what physical ailments, habits and conditions surrounding employment are to be deemed dangerous to mental health.

Section 6. Chapter nineteen of the General Laws is hereby amended by inserting after section four the following new section:—*Section 4A.* There shall be in the department a division of mental hygiene. The commissioner may assign to said division such of the powers and duties of the department as he may determine and may employ such expert assistance for service therein as the Governor and Council may approve. He may, with like approval, designate a member of his official staff to serve as director of said division.

Reported by the Committee on Public Health. Senate No. 429. An Act establishing the Division of Mental Hygiene in the Department of Mental Diseases.

Section 1. Chapter nineteen of the General Laws is hereby amended by inserting after section four the following new section:—*Section 4A.* There shall be in the department a division of mental hygiene, under the supervision of a director. The commissioner, with the approval of the Governor and Council, may em-

ploy such expert assistance to serve in said division as may be necessary.

Section 2. Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section thirteen the following new section:—**Section 13A.** Such of the powers and duties conferred or imposed upon the department by section three A and sections eleven, twelve, and thirteen, may be performed by the division of mental hygiene as the commissioner may determine. In addition to said powers and duties, said division shall institute inquiries and investigations for the purpose of ascertaining the causes of mental disease, including epilepsy and feeble-mindedness, with a view to its prevention. It may also establish, foster and develop out-patient clinics.

Section 3. For the purpose of carrying out the provisions of this act, there may be expended during the current year such sums as the general court may appropriate.

Reported by the Committee on Public Health. Senate No. 428. An Act reading as follows: Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section ninety-nine the following new section:—**Section 99A.** Before trial of a child between seven and seventeen years of age in a district court or before a trial justice on a complaint that he is a delinquent or wayward child or for a criminal offense, he shall be examined by a psychiatrist to be designated by the department for such service in every such court and before every such justice. A report of such examination shall be submitted forthwith to the court of justice and a copy sent to the department. The expense of such examination and report, including the fees of the examiner, not to exceed four dollars in each case, shall be allowed and paid as in examinations conducted under section seventy-four.

Reported by the Committee on Public Health. Senate No. 426. An Act relative to the Investigation by the Department of Mental Diseases as to the Mental Condition of Certain Persons held for Trial, reading as follows:

Whenever a person is indicted by a grand jury for a capital offense or whenever a person, who is known from the court records, the records of the probation officer, or the records of the commission on probation, to have been indicted for any other offense more than once, or to have been previously convicted of a felony, is indicted by a grand jury or bound over for trial in the superior court, the clerk of the court in which the indictment is returned, or the clerk of the district court or the trial justice, as the case may be, shall give notice to the department of mental disease, and the department shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The

department shall file a report of its investigation with the clerk of the court in which the trial is to be held, and the report shall be accessible to the court, the district attorney, and to the attorney for the accused, and shall be admissible as evidence of the mental condition of the accused.

Reported by the Committee on Ways and Means. Senate No. 1595. An Act granting the Consent of the Commonwealth to the Acquisition by the United States of Certain Land and buildings thereon situated in the Town of Rutland.

House, No. 1578. An Act Relative to the Amount to be paid for Burial Expenses in Cases under the Workmen's Compensation Laws.

Section thirty-three of chapter one hundred and fifty-two of the General Laws is hereby amended by inserting after the word "hundred", in the second line, the words:—and fifty,—so as to read as follows:—**Section 33.** In all cases the insurer shall pay the reasonable expense of burial, not exceeding one hundred and fifty dollars. If the employee leaves dependents, such sum shall be a part of the compensation payable, and shall to that extent shorten the period of payment.

House, No. 1583. An Act relative to the Payment of Workmen's Compensation in Case of Death.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Chapter one hundred and fifty-two of the General Laws is hereby amended by striking out section thirty-one and inserting in place thereof the following:—**Section 31.** If death results from the injury, the insurer shall pay the following dependents of the employee wholly dependent upon his earnings for support at the time of his injury compensation as follows:—to the widow, so long as she remains unmarried, sixteen dollars a week if and so long as there are more than two children of the employee who are under the age of eighteen, or over said age and physically or mentally incapacitated from earning, fourteen dollars a week if and so long as there are two such children, twelve dollars a week if and so long as there is one such child, and ten dollars a week if and so long as there is no such child; and, if the widow dies, to such children in equal shares, sixteen dollars a week if and so long as there are more than three such children, fourteen dollars a week if and so long as there are three such children, twelve dollars a week if and so long as there are two such children, and ten dollars a week if and so long as there is one such child; but, if such widow remarries, the aforesaid payments to her shall terminate, and the insurer shall pay each week to each of such children, if and so long

as there are more than five, his or her proportionate part of sixteen dollars, and shall pay to each of such children, if and so long as there are five or less, three dollars a week. The period covered by the payments provided for by the foregoing provisions of this section shall not be longer than four hundred weeks. When weekly payments have been made to an injured employee before his death, the compensation under the foregoing provisions of this section shall begin from the date of the last of such payments, but shall not continue more than four hundred weeks from the date of injury.

In all other cases of total dependency, the insurer shall pay the dependents of the employee wholly dependent upon his earnings for support at the time of injury a weekly payment equal to two-thirds of his average weekly wages, but not more than ten dollars nor less than four dollars a week for a period of five hundred weeks from the date of the injury; but in no case shall the amount be more than four thousand dollars. If the employee leaves dependents only partially dependent upon his earnings for support at the time of his injury, the insurer shall pay such dependents a weekly compensation equal to the same proportion of the weekly payments for the benefit of persons wholly dependent as the amount contributed by the employee to such partial dependents bears to the annual earnings of the deceased at the time of his injury. When weekly payments have been made to an injured employee before his death, the compensation under this paragraph to dependents shall begin from the date of last of such payments, but shall not continue more than five hundred weeks from the date of the injury.

House bill 598, which provided for the limited practice of medicine by medical students, has been redrafted (House, No. 1602). It provides for registration of enrolled students in a legally chartered medical school having the power to grant degrees in medicine on payment of a fee of one dollar. Such registrant may practise under the supervision of an instructor and he may practise in a hospital of not less than 25 beds. He cannot sign death certificates, use instruments except for diagnostic purposes, nor prescribe or dispense narcotic drugs.

The Midwife Bill has been referred to the next General Court.

FAIR play to the public demands a strict curb on a great mass of quackery, masquerading under the name of chiropractic. Fair play to the public would send a substantial percentage of chiropractors either to school or to jail.—*New York Evening World*.

Book Reviews.

Griffith's Pediatrics.

"The book will be found of particular value to the general practitioner, since special subjects, such as affections of the skin, the eye, and the ear, have each been touched on briefly, whilst the more common ailments and diseases are dealt with in a most comprehensive and practical manner. It is a book which we can unreservedly recommend."—*Dublin Journal of Medical Sciences*.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M.D., Professor of Gastroenterology in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Professor of Diseases of Children in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore. Fifth Edition re-set. Philadelphia and London: W. B. Saunders Company. 1919. Octavo, 919 pages. Cloth.

Dietetics has, as these writers properly say, been a subject much influenced by fads and fancies, and hence, the value of a proper diet has fallen into disfavor. In this book the reader finds a great deal with regard to the composition of foods, which is of much value and interest. This is built upon a scientific basis for the various diets, and is so written that the practical directions can be understood even by many laymen. The type is large, the subject well put together, all forms of diet, whether for infants or grown-up people, both in health and disease, is thoroughly explained; the question of alcohol is discussed from the scientific standpoint and in a broad and general way. This volume is much larger than the last edition, which was published some years ago, and has many new and very valuable recipes, directions, tables of chemical compositions of American food materials, full diet tables for every form of disease, and also the food values of the various articles that are commonly eaten.

This is a book that will be read with a great deal of interest by a large number of practitioners, both surgical and medical, and one in which they will find an elaboration of the whole question of diet most thoroughly carried out and explained.

A Treatise on Diseases of the Skin for Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D. Ninth Edition, with the assistance of Henry Kennedy Gas-kill, M.D.; with 401 text-illustrations and 29

colored and half-tone plates. Philadelphia and London: W. B. Saunders Company. 1921.

A ninth edition of Stelwagon's well-known work has just appeared, edited by Dr. H. K. Gaskill. Dr. Stelwagon had begun the revision of this work for its ninth edition in the spring of 1919, with the assistance of Dr. Gaskill, wishing to eliminate as much of the text as possible on account of the great size that the volume would otherwise reach from the addition of necessary new matter. Dr. Stelwagon was obliged, however, to give up the task on account of ill-health, but at his death left many notes and abstracts of various subjects which have been used by Dr. Gaskill. Although the matter of elimination desired by Dr. Stelwagon has been attended to as far as possible, the present volume contains over 1300 pages. Descriptions of several rare conditions have been incorporated—Aerodermatitis Hiemalis, Endothelioma, Keratolysis Exfoliativa, etc. Seventy-four new illustrations have been added and a few of the older ones omitted. Stelwagon's method of a careful search for references has been adhered to as far as possible.

The Intestinal Protozoa of Man. By CLIFFORD DOBELL, M.A., F.R.S., Protistologist to the Medical Research Council, National Institute for Medical Research, London, and F. W. O'CONNOR, M.R.C.S., L.R.C.P., D.T.M. & H., Wandsworth Scholar, London School of Tropical Medicine. New York: William Wood & Co. 1921.

This book offers to the protozoologist or physician interested in the intestinal protozoa of man, clear, concise, and authoritative information. Excellent illustrations are provided. The introduction gives the important historical facts of protozoology. The classification and the geographical distribution of the protozoa are discussed, as well as their relation to their host. Subsequent chapters deal with the four main groups of protozoa found in the human intestine, and the concluding chapters with diagnosis, treatment, and the coprozoic protozoa of human faeces.

A carefully chosen bibliography is an important feature of the work.

The book is complete in essentials and can be recommended highly to students and physicians.

The Spleen and Some of Its Diseases. By SIR BERKELEY MOYNIHAN, 1921, 129 pages and 13 full-page diagrams. Philadelphia: W. B. Saunders Co.

This book contains the material upon which Moynihan based his Bradshaw lecture. He presents in an attractive manner a correlation of the anatomy, pathology and physiology, with the clinical and therapeutic aspects of some diseases in which the spleen is implicated. The historical accounts of splenic surgery are interestingly presented. There appear many references to investigations made in America, especially work done at the Mayo Clinic.

The volume is not a monograph, but an expansion of a timely and attractive lecture. It is not complete enough for a reference book, but is of value as a pleasing summary of some of the knowledge about the spleen and such diseases as hemolytic jaundice, pernicious anemia, Banti's disease, etc. The book contains diagrams which aim to present graphically the chief alterations which occur in splenic disease and their relationship to each other. Desirable emphasis is placed on the fact that in searching for the existence of this or that splenic disease, an inquiry should be made, directed to the determination of the functional capacity of all the various organs likely to be deranged.

A Manual of Obstetrics. By JOHN COOKE HIRST, M.D., Associate in Gynecology, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital. 12mo. 516 pages, 216 illustrations. Philadelphia and London: W. B. Saunders Company. 1919.

The author has taken the entire subject of Obstetrics and condensed it into a small volume. It presents, as far as possible, on the printed page, the methods of teaching which he has used with satisfaction the past twenty years. He presents the subject clearly and concisely. The methods of treatment and technique of operations advocated have been tested in his practice and have given satisfactory results. A minimum of embryology has been included. Diseases of the new-born are included only in so far as they occur during the puerperium. Chapters on lacerations of the birth canal and consequences of childbirth are very thorough. A new classification of deformities of the pelvis is presented, the classification being based on their most prominent deformity. This method has been found easier for the student to remember, and simplifies the discussion of their management. Especial care has been given to the mechanism of labor. Obstetric operations and the use of forceps are very fully considered. Indications and contraindications for operations are stated. Hemorrhage, also, is fully covered. It is an excellent manual for the student, and will enable the busy practitioner to acquaint himself quickly with the latest in obstetric work.

Gynecology. By WILLIAM P. GRAVES, M.D., Professor of Gynecology at Harvard Medical School. Second edition. Thoroughly revised. 883 pages, 490 original illustrations, 100 in colors. Philadelphia and London: W. B. Saunders Company. 1918.

This book is designed both as a textbook and general reference book. For this purpose it has been divided into three distinct parts. Part I deals with the physiology of the pelvic organs and the relationship of gynecology to the general organism. The latter subject is a comparatively new departure. This part should prove of value to both student and general practitioner. Part II includes a description of those diseases which are essentially gynecologic. Drawings of pathologic conditions are shown in preference to descriptions, which is the correct way to teach this part of the subject. Part III is devoted exclusively to the technic of gynecologic surgery. Surgical devices for the cure of gynecologic diseases are innumerable and cannot all be included in a book of this scope, but the author gives the operations which his experience has shown to be the best suited for the requirements. Many excellent procedures have perforce been omitted. As a guide to the student, general practitioner and surgeon, this book can be confidently recommended.

Surgical Shock and the Shockless Operation Through Anoci-Association. By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and WILLIAM LOWER, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Second Edition. Thoroughly revised and re-written. Octavo of 272 pages with 75 illustrations. Philadelphia and London: W. B. Saunders Company. 1920.

The second edition of "Anoci-Association" has the advantage of several years of practical observation and experience in determining the reliability of the principles laid down in the first edition. The authors say: "Accumulating experience in the civilian clinic and in field and base hospitals in France has added so much corroborative evidence of the soundness of the fundamental principles of anoci-association and of its practical application, that we have ventured to re-write and augment our former volume."

A Textbook of Physiology for Students and Practitioners of Medicine. By RUSSELL BURTON-ORITZ, M.D., Ph.D., Associate Professor of Physiology, Columbia University, New York City. Octavo of 1185 pages, with 538 illustrations. Philadelphia and London: W. B. Saunders Company. 1920.

This is a splendid work on physiology, which reflects great credit on the author. As the author states, it has been his endeavor to invade the field of comparative physiology no farther than is absolutely necessary for a basis for the physiological problems of special importance to medical men. The author believes that the sole hope of modern medicine is physiology, or the experimental sciences, and as "medicine is physiology" that the student should make a conscientious effort to become thoroughly acquainted with this subject. With this object in mind, the author has given us a book which in truth presents physiology to date, made interesting and instructive throughout, and which is a perfect storehouse of invaluable information. The book is well illustrated with drawings, largely original; full of valuable tables, experiments, etc., and is without question, one of the best works on physiology ever brought to our notice.

Principles and Practices of Physical Diagnosis.

By JOHN C. DACOSTA, JR., M.D., Ex-associate Professor of Medicine, Jefferson Medical College, and Assistant Visiting Physician, Jefferson Hospital. Fourth edition; thoroughly revised. Philadelphia and London: W. B. Saunders Co.

One of the first five books on diagnosis in English, this volume has now reached its fourth edition, and the author has taken the opportunity of having it completely revised to bring it up to date. Especially is this true of the chapters on the heart and lungs, where all the newer developments are fully touched upon. The letter-press and illustrations are all that could be desired.

A Psychiatric Milestone. Bloomingdale Hospital Centenary 1821-1921. Privately printed by the Society of the New York Hospital 1921. 220 pages.

The *Psychiatric Milestone* consists of a series of papers read at the centenary of the founding of Bloomingdale Hospital. The following contributed to the exercises, which were held at the Hospital, at White Plains, May 26, 1921: "Historical Review," Edward W. Sheldon, Esq.

"The Contributions of Psychiatry to the Understanding of Life Problems," Adolf Meyer, M.D.

"The Importance of Psychiatry in General Medical Practice," Lewellys F. Barker, M.D.

"Greetings from the New York Academy of Medicine," George W. Stewart, M.D.

"The Biological Significance of Mental Illness," Richard G. Rows, M.D.

"The Relation of the Neuroses to the Psychoses," Pierre Janet, M.D.

The papers in general emphasize the development of psychiatry in the past hundred years.

Dr. Meyer compares "a cold dogma of blind heredity and a wholesale fatalistic asylum scheme" with the present "understanding of individual, familial, and social adjustments, and a grasp on the factors which we can consider individually and socially modifiable."

Dr. Barker shows the growth of interest taken in psychiatry, of late years, by the general practitioner and consulting internist, despite many causes which have been responsible for a former lack of interest in modern psychology. He enumerates these causes as follows:

1. Social stigma attached to mental disorders.
2. Faulty education in inculcating adequate symbols of reality.
3. Failure of many medical schools to establish psychiatric clinics.
4. Lack of understanding of the language of the psychiatrist.
5. The often misguided ardor of psychoanalysts.
6. Fear of insanity among the laity.
7. The objection of the medical practitioner to deal in what he considers the occult.
8. The rise in specialism which prevents a doctor from knowing his patients well.

Dr. Rows gives many examples showing the importance of understanding the trifling past experiences in the life of a patient which throw light on his present mental state.

Dr. Janet points out the marked division, during the nineteenth century, between the neuroses and psychoses and the present attempt to "see a common ground. The question is always an alteration in the conduct, and, above all, in the social conduct . . ."

There are several appendices giving old letters on "Pauper Lunatic Asylums," etc.

South America from a Surgeon's Point of View. By FRANKLIN H. MARTIN, C.M.G., M.D., F.A.C.S.; in collaboration with William J. Mayo, M.D., Thomas H. Watkins, M.D., and Francis P. Corrigan, M.D. Introduction by William J. Mayo, M.D., F.A.C.S. New York: Fleming H. Revell Company. 1922.

In order to bring about a closer relation between the medical professions of South and North America, efforts have been made by representatives of the American College of Surgeons to become acquainted with medical conditions in South American countries and to promote interest there in the American College of Surgeons. The report of two trips made in 1920 and 1921 to Panama, Peru, Chile, Argentina, Uruguay, Brazil, Ecuador, and Bolivia, by Dr. Franklin H. Martin, Director-General of the American College of Surgeons, has been published as a monograph in order to give our surgeons a better understanding of medical progress in the Southern Continent. The general reader will be interested in the historical facts here collected, in the geographical survey, and in the political, social, and industrial conditions described, while from the standpoint of the medical profession, the information given about the medical schools, the hospitals, and the operating surgeons of South American countries, makes the book one of particular professional interest. There are included in this work, excerpts from articles by Dr. William J. Mayo and Dr. Thomas J. Watkins, who accompanied Dr. Martin, and also a report of medical conditions by Dr. Francis P. Corrigan. The book contains an English-Spanish and English-Portuguese vocabulary, and is excellently illustrated. This volume is one of unusual interest and should succeed in its purpose of enlightening our medical profession in regard to medical conditions in South America and in stimulating interest, friendship, and coöperation between the professions of both countries.

An Introduction to the History of Medicine.

By FIELDING H. GARRISON, Lieut.-Col., Medical Corps, U. S. Army, Surgeon-General's Office, Washington, D. C. Philadelphia: W. B. Saunders Co. 1921. Octavo of 942 pages, with 257 portraits and other illustrations.

To this work by Colonel Garrison, now appearing in its third revised printing, is attributable in large measure that intensified interest in the history of medicine obtaining today in America. That interest eight years ago (before the appearance of the first edition of this "Introduction to the History of Medicine") was rather vague and scattering. Fact was it was ill-nourished—had nothing to feed on. Garrison's work "filled a gap in our literature," as Sir Clifford Allbutt pointed out in the preface to his "Greek Medicine in Rome." He has given us a polyvalent account of our profession which leaves nothing to be

desired. Dr. Garrison says that this book is a product of the Surgeon-General's library. In reality, it is the product of a full, ready quadrilateral mind, full in freightage of facts, ready in wit, and many-sided, with such supple address in the ordering of a great historic synthesis as is seldom encountered. Quite the first thing, to our mind, in the author's equipment for this task was, not his position in the National Medical Library, where he could draw upon all available medical literature of all lands, but his mighty capacity to deal with an infinitely diversified material, and deal astutely withal, in a simple manner, in a simple, yet full and flowing, Saxon speech. Two added excellences he has,—a power to evoke, in full brilliance, the massive and spiritual significance of each epochal event "in the long and broken ways of history," and the wit to trace without tediousness the multifarious traditional continuities which knit up the story of discoveries and improvements in the circle of the sciences. Traffics, events, organic relationships—Garrison invests them all with very human charm. As for the heroes of the Apollonian art, he treats them as if they were living, breathing beings, not as so many ranks of tabled corpses. In vesture and substance, they are very real; and in the scale of merit each differing soul rises to its just degree, by grace of the author's discrimination.

It has been Dr. Garrison's aim to stress the modern period of medicine. Ancient and medieval medicine extend to somewhat over a quarter of the total content of the volume. Then come the ages of liberation and individual scientific endeavor. In these three centuries (17th-19th), the sciences were on the wing. The ordinary reader, without a particular flair for "origins," cares relatively little for what went before—aside from the legacy of Greece. Yet if he reads, as he undoubtedly will, Chapters I-VIII, which carry him from the Stone Age to the Seventeenth Century, he is sure to bear those preceding periods in higher regard than ever before. Much new material has been added to all sections and revision has been so fundamental that it has necessitated resetting the types throughout. Should the printing of histories of medicine in the English tongue become pandemic this imperishable volume, in our opinion, could still hold its own against all rivals.

Hospital of the Protestant Episcopal Church in Philadelphia. Medical and Surgical Reports of the Episcopal Hospital. Volume V. Philadelphia: Wm. J. Dornan. 1920.

A volume of 500 pages, well printed, bound and illustrated, contains "papers based upon

the work done in the Episcopal Hospital, 1916-1920."

"The publication of this volume has been made possible by the establishment of a Publication Fund by a generous friend of the Hospital, the late Miss Harriet Blanchard.

The cases are taken from the various Services and Departments of the Hospital, and also from the Staff of Base Hospital 34, A. E. F.

Thirty-four men contribute fifty-seven papers. Astley P. C. Ashhurst contributes twenty papers. This fact makes the inquiring reader certain that the volume will be valuable, even apart from the very excellent work of the other men.

"There is one other point to which I desire to call attention. This is the advisability of attempting to prevent perforation in suitable cases by a 'precoxious' operation, the operation consisting in establishing a false anus above the seat of most marked intestinal lesions in the lower ileum. This is not a new proposal, and though I have not been able to persuade any of the physicians who were in charge of typhoid patients to let me attempt the operation, I am firmly convinced that it has its place."

This quotation is an admirable indication of Dr. Ashhurst's surgical characteristics and literary power. He has done eleven operations for typhoid perforation, of which five recovered—a very excellent showing.

The book is a good example of the best type of Hospital Reports.

Pneumonia. By FREDERICK TAYLOR LORD, A.B., M.D. Cambridge, Mass.: Harvard University Press. 1922.

This little booklet of 70 pages, attractively bound and printed, is one of a series of public lectures on medical problems which during recent years have been delivered at the Harvard Medical School. In this health talk, Dr. Lord takes up the subject of pneumonia in a clear and scholarly way.

Anything dealing with a disease which, despite our best efforts, carries with it such a high mortality, is of importance. To have first-hand information given from an authoritative source so plainly and clearly as in this instance, makes this little volume of especial value.

It will prove helpful not only to the laity, but to the medical profession as well.

EXPERTS on rat extermination contend that there are as many rats in American cities as there are people. Rats impose a great economic burden and may spread serious diseases. A campaign against rats should be regularly conducted. It is estimated that it costs two dollars per annum to support a rat.

Current Literature Department.

ABSTRACTORS.

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BRYANT D. WETHERELL

FRED S. HOPKINS

VON RECKLINGHAUSEN'S DISEASE, OR OSTETIS
FIBROSA.

YOUNG, JAMES K., AND COOPERMAN, M. B. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

Osteitis fibrosa, under which may be included benign bone cysts, giant-cell sarcoma of the epulis type, hemorrhagic osteomyelitis and the generalized form (Von Recklinghausen's disease), is a distinct pathologic entity characterized by a fibrous metamorphosis of bone.

Two types of the disease are recognized: a local and a general type. Local osteitis fibrosa and benign bone cysts are dependent upon trauma in a great majority of instances. The general form is dependent upon grave nutritional disturbances. Endocrinal glandular dysfunction, faulty calcium metabolism and chronic infection of a low grade seem to be of etiologic significance.

Cysts, osteitis fibrosa cystica and giant cells may occur in the same bone. The giant-cell content is not prognostic of malignancy.

Diagnosis of osteitis fibrosa is based upon the long duration of this process with very vague symptomatology, the frequency of spontaneous fractures and upon x-ray examination. Very often microscopic examination of pathologic sections is necessary to clear up the diagnosis.

The local form of the disease is benefited by curettage and bone transplant. The type showing multiple lesions must be given constitutional treatment directed toward the underlying constitutional disturbance. If the lesions be accessible, curettage and bone transplant may be employed. The x-ray and radium have been used in these cases with some success.

[E. H. R.]

THE RADICAL CURE OF TUBERCULOSIS OF THE
SEMINAL TRACT.

YOUNG, H. H. (*Archives of Surgery*, March, 1922). writes as follows: Statistics show conclusively that in most cases of "genital tuberculosis," the primary focus is in the seminal vesicles. Tuberculosis of the seminal tract is, therefore, the better name.

From the seminal vesicles, the globus minor of the epididymis is generally next attacked. From the seminal vesicles, the prostate, urethra and bladder are often attacked later. From the seminal vesicles, more rarely, the kidney may be invaded through the lymphatics along the ureter. From the seminal vesicles by the posterior line of lymphatics, the mediastinum and the lungs may be involved.

Tuberculosis of the seminal vesicles (ampullae

and prostate, if involved) ranks first in importance when a curative operation is proposed for genital tuberculosis. Epididymectomy with injection of the vas and vesicle, as proposed by von Bünger, is preferable to simple excision, as Cunningham has shown. Still better results may be obtained by bringing the vas permanently out of the skin in the groin for frequent injection and continuous drainage, as proposed by myself in 1901, and often employed.

But with all the non-radical procedures, a high percentage of failures—ultimate infections of remote organs, and death—result. The only hope of radical cure or complete arrestation of the disease is by the radical operation—"epididymovesiculectomy," or, better, "excision of the tuberculous seminal tract." This operation has already saved many otherwise hopeless cases.

By the technic described by myself, with the use of a long "urethral prostatic tractor," the urinary tract can be avoided, while the removal of vesicles, ampullae and prostatic lobes is facilitated.

The entire vas deferens can be removed by the to-and-fro traction described without opening the inguinal canal as previously done.

The incisions are comparatively small and the operation can be performed under procain infiltration anesthesia (1 to 400) if the lungs are involved.

The fifteen cases reported here (in seven of which the lungs were probably previously involved, and in five of which one kidney was tuberculous, etc.), of which only one patient died of tuberculosis a year later, the others being apparently completely arrested, show the effectiveness of this radical operation.

In my opinion the only justifiable operation in tuberculosis of the seminal vesicles and epididymides is a radical excision of the seminal vesicles, ampullae (and lateral lobes of prostate, if involved) through the perineal prostatectomy incision, coupled with epididymectomy and extraction of the entire vas deferens, with partial or complete castration if necessary (a rare occurrence).

The old-fashioned castration is an unnecessary mutilation and does not often cure. Radical excision of the seminal tract is the operation of choice. [E. H. R.]

ENCEPHALITIS LETHARGICA.

This report of 20 cases by HUME, NATTRASS and SHAW (*Quarterly Journal of Medicine*, January, 1922) contains several interesting features. The onset was acute in twelve, and insidious in eight cases. Particularly interesting was the onset with neuritic pains and fever in three cases.

One of these was sent to the hospital with a diagnosis of sciatica. In all three the pains shifted from one side to the other, and involved chiefly the arms and legs. One case started with the symptoms of acute delusional insanity. Fever was present at the onset in all which began acutely, and probably also in those with gradual onset.

Eye Symptoms.—The pupils showed sluggishness or failure of reaction to light in 40 per cent. Hazy vision, due to failure of accommodation, was a common complaint. Optic neuritis was not found in any case. Diplopia and ptosis were often noted. In two cases trismus was a marked feature; in one the right side of the tongue became paralyzed.

Myoclonus was noted in 70 per cent., and involved chiefly the limbs, less often the abdominal and back muscles, and those of the face and jaw. The writers include, however, under the term myoclonus, cases in which jerky movements of the limbs resulted from

the muscular contractions, hence perhaps the very high incidence of this sign as compared with other reports in the literature.

The deep reflexes were usually normal, but in five cases there was a diminution, loss, or inequality of the knee jerks, and in one they were increased, with patellar and ankle clonus.

The authors state that the cerebrospinal fluid was usually negative, but their examinations were not very thorough; in the reviewer's experience there is usually some abnormality shown by a moderate increase in the cell count, an increase in the globulin, or a positive colloidal gold reaction.

Post-mortem examinations in the four fatal cases showed the usual findings, except that in one, a child of six years, numerous collections of polynuclear leucocytes were noted. An interesting feature was the presence of focal edema, both with and without cellular infiltration, which perhaps explains the fleeting character of many of the paralyses. [W. T.]

STREPTOCOCCAL INFECTIONS OF THE HEART.

CAREY COOMBS (*Quarterly Journal of Medicine*, January, 1922) reports the results of an exhaustive study of the hearts of persons dying of rheumatic heart disease and of ulcerative streptococcal endocarditis.

In rheumatic carditis he found the characteristic submiliary nodules of Oschoff constantly present in the acute cases, and absent in chronic cases dying of the mechanical effects of heart disease. They were consistently absent in the hearts of patients dying of other acute infections, with the exception of two cases of scarlatina, and of "certain cases" of subacute bacterial endocarditis, in which latter foci were occasionally found bearing some resemblance to the early stages of the submiliary nodule.

Similar nodules were encountered in rheumatic cases in the endocardium, and the pericardium, and in the subcutaneous tissues and joints.

Coombs describes in detail the evolution of the submiliary nodule. The situation is in the interstitial connective tissue along the course of the vessels. "First the endothelia of the smaller blood-vessels and lymphatics proliferate with more or less occlusion of the vessels and dissemination of endothelial leucocytes, mainly in perivascular foci, and building up of new capillaries. Second, the perivascular connective tissues display a fibroblastic reaction, especially around the newly formed capillaries. Third, leucocytes arrive in the disturbed area; in most areas the polynuclears are represented but sparingly, but the more severe the attack, the more likely they are to appear, and in some spots they even dominate the picture, especially where large vessels are closed by inflammatory thrombosis." The fully developed nodule shows as its characteristic feature large, dark-staining cells with many nuclei; they are believed to be endothelial in origin. The nodules heal and leave but little scar. The whole process is acute and occupies not more than two or three weeks.

The cardiac lesions in ulcerative endocarditis showed a very different distribution, the brunt of the infection falling on the endocardium, while the myocardium showed only a very few lesions, of embolic character.

Inoculation of rabbits with streptococci derived from rheumatic subjects and from the normal mouth and stool showed cardiac lesions in some of the animals. The injections were made intravenously in large doses. The outstanding feature of the carditis thus produced was widespread injury to the endocardium, with comparatively little myocardial damage. The myocardial lesions, when present, sometimes resembled the rheumatic nodule, but more often they were like the embolic lesions of ulcerative endocarditis. [W. T.]

STUDIES IN EXPERIMENTAL TRAUMATIC SHOCK.

CANNON, W. B., AND CATTELL (*Archives of Surgery*, March, 1922).—These authors discuss in detail the effects of decreased blood volume or decreased arterial pressure, the relation of reduced alkali reserve to blood pressure, the significance of the reduction of alkali reserve in shock and the experimental determination of the critical level, and the evidence of damage to the central nervous system from low blood pressure. [E. H. R.]

PAPILLOMA OF THE LARYNX IN CHILDREN.

CROWE, S. J., AND BREITSTEIN, M. L. (*Archives of Surgery*, March, 1922).—These authors make a report on this subject based upon eleven personal cases taken from the surgical clinic of the Johns Hopkins Hospital. They find that a cure may be often obtained without recourse to radical surgical operations. They believe that the external operation for papilloma of the larynx in children is never justifiable. The growth may be cured by this method, but a stenosis of the larynx results. Early tracheotomy is necessary. The growth should be removed through the mouth and under direct vision. Care must be taken not to injure the surrounding mucous membrane; even sponging with gauze in some cases may result in the spread of the growth. Actual or chemical cauterization should be avoided, as these things will not prevent recurrence, and will result in scarring or stricture. Tracheotomy removal of the growth, careful use of x-ray and radium, and above all, patience, are the essential features in the treatment of this condition. Endolaryngeal removal is the operation of choice. The authors discuss in detail tracheotomy in children, the technic of operative removal, and other methods, and give a detailed report of the treatment in their eleven cases.

This article is a valuable contribution to the subject. [E. H. R.]

VENTRICULOCORDECTOMY.

JACKSON, C. (*Archives of Surgery*, March, 1922).—Jackson says:

1. In ventriculocordectomy I believe we have a simple endoscopic operation that can be performed under local anesthesia and that will cure almost every patient with laryngeal stenosis that is due solely to abductor paralysis, if the case is not complicated by a faulty tracheotomy.

2. Ventriculocordectomy is indicated in cases of stenosis resulting from a hopelessly paralyzed larynx.

3. This or any other form of operative clearing of the airway is contraindicated in the first six months of abductor laryngeal paralysis. In most cases it is wise to wait a year.

4. The best means of affording relief of dyspnea and safety of the patient during this waiting period is by prompt low tracheotomy. High tracheotomy is the cause of more cases of cicatricial laryngeal stenosis than any other one thing. With a low tracheotomy, a pair of proper cannulas, and a daily toilet of the fistula, there is nothing lost by waiting.

5. Out of eighteen cases in which ventriculocordectomy was performed, the seven that were uncomplicated by cicatricial stenosis were afforded satisfactory relief of dyspnea by this procedure alone. One required division in addition.

6. The chief functions of the larynx are phonetic, protective and expectorative. Considered in the light of the degree of preservation of these functions, ventriculocordectomy not only surpasses any previously devised operation, but is simply ideal for those cases in which neural and muscular atrophy has rendered resumption of normal cordal mobility hopeless by either spontaneous recovery or neuroplastic surgery. [E. H. R.]

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HOSPITAL SURVEYS.

EVER since the American College of Surgeons made a survey of hospitals for the purpose of determining the standing of these institutions for its own estimate of the quality of service rendered, the advisability of a complete survey of hospitals has been discussed. The suggestion has been advanced that the public is entitled to know more about hospitals.

These institutions are important factors in the economic scheme of life. They are supported by taxation and private contributions. Dr. E. A. Codman long since called attention to the obligation of hospital authorities to analyze the work done, because the patients should be informed of its quality and the supporters should be satisfied with economy of management as well as efficiency.

The New York Academy of Medicine about a year ago arranged for a survey of the hospitals in New York City through its Public Health Committee. Considering the large amount of money (about \$351,000,000) spent each year in this city for hospitals, a survey is of great interest, especially since it has been suspected that modern business methods are not very generally employed in carrying on these institutions. Whether the support comes through taxation or benevolent contributions there should be publicity of the benefits secured.

Following the example of New York, it is probable that organizations in other states will take on this responsibility. If it is not done voluntarily the people may demand it, and if taken up by the state, the politicians may find reasonable ground for criticism, for like many forms of philanthropy, there may be question of efficiency, in the lack of comprehensive plans for coordination where they may be needed, or elimination of unwise duplication of effort.

The study of hospital efficiency, on a financial basis only, is crude and insufficient; for, in addition to the care of patients, the usefulness of a hospital involves other important problems, such as social service, the training of nurses and the education of physicians. There are many other matters which will call for adjustment sooner or later, for the medical profession is raising questions about the constitution of the staffs of hospitals and the medical politics which are sometimes developed because of community interest by the entrenched appointees.

There will always come up for consideration questions relating to the care of chronic cases and convalescents. To the average physician the time-consuming care of lingering illness interferes with his active work and many hospitals are obliged to restrict the beds to acute cases. At some future time the public will demand adequate facilities for the care of chronic cases. Convalescent patients, too, are often left out of the hospital plan, for, after the immediate and insistent demand of acute illness has been met, it has happened many times that patients have been sent home too soon and have had to contend with the necessity of self-support long before broken health conditions could stand the strain.

Here in Massachusetts the large medical societies could best study and analyze the workings of our hospitals. The task is great and many difficulties would have to be overcome, for the problem presents many features of diplomacy as well as ability to evaluate the data secured.

Some may contend that a voluntary survey is an impertinent meddling with private affairs, but if the American College of Surgeons can undertake this work in a limited way, the Massachusetts Medical Society, in association with the Massachusetts Homeopathic Society, could do it more generally and render a great service. The mere fact that some institutions might object to an inspection would place the managers in an embarrassing position. The end would justify the means. Surveys should be made in advance of public demand.

Business is being studied from the standpoint of economy and efficiency. Hospitals are concerned with the most important phase of business, i.e., the salvaging of the human machine.

SOME DANGERS ASSOCIATED WITH MILK.

SINCE milk is universally recognized as one of the most important foods, and because there are inherent dangers connected with its production and distribution, health authorities are publishing advice relating to the possibility of dangers from the use of milk derived from a diseased cow or contaminated by handlers of the product. This advice is timely, for although the danger from the infected cow exists at all seasons, there is an added peril in warm weather from the greater liability to contamination and the more rapid development of toxins resulting from more active bacterial growth. The cow may disseminate bovine tuberculosis and streptococcal sepsis. The fly may convey to the milk typhoid and other bacteria, and the handlers may spread any of the communicable diseases. Although the employment of pasteurization has been recommended for many years, comparatively few people buy milk so treated or use this method in the treatment of milk. Consumers are entitled to a wholesome product, and since many are not sufficiently well-informed to be able to pasteurize milk properly, the desirability of establishing a municipal station where this method can be used should be carefully considered.

In all probability milk producers will eventually adopt standard methods for caring for cattle so that the existence of disease will be recognized much earlier than it is at the present time and owners of cows will carefully examine them for other conditions than tuberculosis. Consumers can at least demand of owners the use of the tuberculin test. Physicians can add very much to the avoidance of milk-borne diseases by coöperation with boards of health. Veterinarians are doing excellent work in advising farmers of the dangers incident to the use of milk from unhealthy cattle, but there is lack of intensive study on the part of dairymen of the best methods of caring for the cattle and the milk.

Until the safety of the milk supply can be assured, pasteurization should be more generally employed, but dependence on this procedure should not lead to the neglect of careful examination, especially of children, at stated periods. Milk, whether pasteurized or not, may not be above suspicion from the standpoint of nutrition. The proportion of the essential elements may vary to an abnormal degree and in infants especially a milk diet may need supplementary foods. The physician is coming into more prominence as a general adviser to the family even during apparent health, but this custom should become universal. If ordinary machinery needs careful inspection to detect flaws, the human machine should be equally well studied.

In meeting a definite danger more acute in warm weather, physicians may properly be active in disseminating information in advance and be aiding health officials who are already at work.

MONTANA MATERNAL DEATHS.

THE Public Health Service has made an analysis of infant and maternal mortality in Montana. This state had the unenviable distinction of having the highest maternal death rate in the registration area. The stillbirth rate cannot be compared with many states for certificates are required of all stillborn children that have passed the fourth month of gestation.

The analysis shows that the maternal death rate for 1920 per 1000 living births is 9.9, which is slightly lower than that for 1919. The rate for the United States registration area for 1919 is 7.4. In 1919 Montana had a rate of 11.8 out of 12,017 living births, while Massachusetts had 7.1. The rate for 1920 has not been completely made up. There were 109 deaths from the puerperal state in 1920, of which 45 were caused by septicæmia, 16 by puerperal albuminuria and convulsions, and 15 by accidents of pregnancy. Some of the 16 cases of puerperal phlegmasia and embolism might be added to the 45 deaths from septicæmia. Of those persons who had been under physicians' care through the prenatal period, only 5.4 per cent. contributed to the maternal mortality, which offers a convincing argument for medical supervision during pregnancy. The comment is made that "No amount of faultless technique can repair or anticipate organic defects and damage wrought by months of neglect."

Prenatal care is becoming more general in Massachusetts and the lower maternal death rate in the states where pregnant women are carefully supervised is convincing evidence of the necessity of such practice. Montana, with its comparatively small and scattered population, would benefit by the Sheppard-Towner law at the expense of other states.

THE CREDULOUS ABERDONIANS.

CONTRARY to the long-cherished belief in the hard-headed Scotchman, it has been recently demonstrated that this nationality is as gullible as the rest of us, according to reports from Aberdeen and Orkney. It appears that an American missionary has been practicing the "laying on of hands" for the cure of disease, under the auspices of the Episcopal diocese of that section. The endorsement of the method is shown by the addition of the Episcopal

blessing. Although the percentage of cures has not been high, one thousand cases appeared on one day. The usual hysterical demonstrations were in evidence. Here is another evidence of the lack of worldly wisdom on the part of the clergy. We are accustomed to these exhibitions among our more mercurial people, but had not supposed that our Scotch relations were so simple-minded. The facts are set forth in the *Medical Press and Circular*.

HOOKWORM REMEDY FOUND IN CARBON TETRACHLORIDE.

FOLLOWING the discovery by the United States Department of Agriculture that the chemical, carbon tetrachloride, is effective against hookworms in animals, numerous trials in various parts of the world have given strong indication that it is the long-sought remedy for this parasite in human beings. This important advance adds another discovery to the list of those that Department scientists have contributed to human medicine, one of the most important of which is the fact that certain diseases may be transmitted from one animal to another by such external parasites as ticks and insects. If it comes up to expectations,—and all tests made so far have been highly encouraging—this drug will be a boon to millions of people in many parts of the world.

The Department has demonstrated beyond doubt that this chemical is a remedy for hookworm and related blood-sucking worms in animals, and its use for this purpose was first called to the attention of the medical profession in the *Journal of the American Medical Association* for November 19, 1921, by Dr. Maurice C. Hall, who made the investigations.

According to a recent article in a London medical journal, natives in the Fiji Islands have been given this treatment for hookworm with satisfactory results. Ninety-eight per cent. of the parasites were removed with one dose of carbon tetrachloride and no bad effects were noticed. The absence of harmful effects on the patients, in the tests so far, is very encouraging, as the danger attendant on the employment of the drugs most used at present constitutes a serious handicap to the work of hookworm eradication. The new treatment is, also, extremely cheap, the chemical being one that is commonly used for cleaning clothing.

At the present time the Department's discovery is being tried out as a drug for removing hookworms from people in the Southern States, on the Pacific coast, in India, Ceylon, Dutch Guiana, the Fiji Islands, and Brazil.

NEWS ITEMS.

A DEMONSTRATION clinic was held at the Beverly Hospital on April 1, 1922. Doctors were present from Beverly, Danvers, and Hamilton. The following cases were shown and discussed: fracture of fourth cervical vertebra, syringomyelia, cretinism, ankylosis of right shoulder-joint, and question of tuberculosis or infection. Dr. Burnett of Manchester and Boston gave a most interesting talk on "Intestinal Indigestion." These clinical meetings are held on the third Tuesday of each month at 4 P.M., at the Beverly Hospital.

COMPARATIVE INFANT MORTALITY RATES.—The New York City Department of Health compares the London infant mortality rate of 79 per thousand births with that of 71 for New York for 1921, and publishes the following statistics for this country:

	Reported Deaths	Deaths Under 1 Year of Age	Infant Death Rate per 1000 Births
Los Angeles	13,655	836	66.13
New York	134,240	9,548	71.1
Cleveland	20,283	1,482	73.1
Boston	19,386	1,406	77.12
Philadelphia	43,434	3,381	77.8
Detroit	27,561	2,304	83.6
Baltimore	18,808	1,597	84.9
Pittsburgh	16,193	1,517	93.6
St. Louis*	14,050	987	61.7
Chicago*	56,543	5,071	89.68

*Not in birth registration area.

It will be noted that Los Angeles is the only one of the cities in the birth registration area showing a lower infant mortality rate than New York City.

HENRY WEKSLER of 102 Church Street, Manhattan, has been fined one hundred dollars by the Municipal Court for selling inaccurate clinical thermometers.

SUSPENDED REGISTRATION IN MEDICINE.—At a meeting of the Board of Registration in Medicine the Registration of Dr. Arthur A. Lawrence was suspended for one year, terminating April 18, 1923.

MEMBERS of the Society who may want to be affiliated with another District Society, should petition the Council according to the form below:

(Place) (Date)
To the Council of the Massachusetts Medical Society:

As my practice and professional affiliations entirely

are with the District

largely
Society, I hereby petition, according to the provisions of Chapter III, Section 3, of the

By-Laws, to have my membership changed to the above named district from the
 District, where I have a legal residence.

Signed

BOSTON DEATH RATE.—During the week ending April 22, 1922, the number of deaths reported was 223 against 215 last year, with a rate of 15.18. There were 32 deaths under one year of age against 30 last year.

The number of cases of principal reportable diseases were: diphtheria, 57; scarlet fever, 42; measles, 256; whooping-cough, 8; typhoid fever, 2; tuberculosis, 79.

Included in the above were the following cases of non-residents: diphtheria, 8; scarlet fever, 5; measles, 1; tuberculosis, 47. The 47 tuberculosis cases were reported by U. S. P. H. S. Hospital, Parker Hill, Boston.

Total deaths from these diseases were: diphtheria, 2; scarlet fever, 1; measles, 2; whooping-cough, 1; tuberculosis, 16.

Included in the above were the following cases of non-residents: diphtheria, 1; tuberculosis, 1.

HAMPDEN DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society was held at Hotel Nonotuck, in Holyoke, on Tuesday, April 25, 1922, at 4 P. M. Dr. Henry Christian of the Peter Bent Brigham Hospital, read a paper on "Digitalis Usage." Discussion by members followed. Dinner was served at 5.45 P. M., at the expense of the Society.

The Censors will meet at Springfield Academy of Medicine, 137½ State Street, Springfield, on Thursday, May 4, at 4 P. M., for the examination of candidates for admission to the Society.

HERVEY L. SMITH, *Secretary*.

THE SEMI-ANNUAL MEETING OF THE BRISTOL NORTH DISTRICT MEDICAL SOCIETY was held on April 20, 1922. The following officers were elected for the ensuing year: President, Sumner Coolidge; Vice-President, William O. Hewitt; Secretary, A. R. Crandell; Treasurer, Ralph D. Dean; Commissioner of Trials, Charles S. Holden; Censors, Harry B. Baker, T. F. Clark, A. R. Crandell, F. A. Hubbard, T. J. Robinson; Supervising Censor, F. A. Hubbard; Councillors: William A. Allen, F. A. Hubbard, Joseph B. Gerould; Nominating Councillor, F. A. Hubbard; Alternate Nominating Councillor, William A. Allen. Action was taken on the death of Dr. Joseph Battleshaw.

After lunch was served, Dr. Bartol spoke briefly on the aims of the Society. Dr. P. E. Truesdale of Fall River then gave the paper of the evening on "Uterine Fibroids."

Miscellany.

EMINENT SCIENTISTS STARVING IN RUSSIA.

PATHETIC stories of the sufferings of eminent scientists in Soviet Russia have reached the Russian academic group in the United States, whose members, including Russians who formerly taught in the universities in their native land, are now attempting to enlist the sympathy of Americans to contribute food drafts through the American Relief Administration.

Dr. Vera Danchakoff of the College of Physicians and Surgeons, Columbia University, has made public letters and other data showing the plight of internationally known Russian scientists.

Here is an abstract from a letter written by Boris Sokoloff, Professor of Biology, concerning his visit to Professor Federoff, a crystallophysicist:

"It was painful to see the sufferings of Professor Federoff. Aged, with hair all white, emaciated from starvation. I brought him a piece of bread. He bit it greedily, then all at once he stopped and said, 'You are young. You need it more than I. It is time for me to die.' His last words before his death were, 'I will soon die, and before dying I want to say to you, dear friends, dear students, more courage. Russian science is covered with wounds received during the past years, received in vain, because science was outside of politics. The wounds are deep, but not mortal. Russian science will recover from them . . . More courage. . . .'"

Here is part of a letter to Dr. Danchakoff from Professor Maximoff of the Medical Academy in Petrograd:

"With every day life becomes more intolerable. People die like flies. If not for the hope of escaping I would have committed suicide.

"Let me know whether I can count on any position anywhere in America or anywhere. It is impossible for me to leave Russia now, but I hope in time it will become easier.

"Do you know and all other civilized people in America know what is going on here! The reality excels all hearsay. We were proclaimed parasites and idlers. We were deprived even of that ration which is given to soldiers and workmen. Those of us who had in reserve clothes or other things sold them gradually, in order to continue existence. Those who had no clothes or anything else to sell, sold their books. This was pathetic."

Money for food drafts may be sent to the American Relief Administration, 42 Broadway, and should be marked, "For the educational institutions in Russia." It is promised that every institution will get its share.—N. Y. Times.

MEDICAL WORK IN NEAR EAST.

CHARLES V. VICKERY, Secretary of the Near East Relief, reports to Congress that 38 hospitals, besides clinics and special dispensaries, are being maintained in addition to sanitary work for refugees and emigrants in this area. There were 80,401 patients cared for, according to the last monthly report. In the Alexandropol orphanages there are more than 3,000 children suffering from trachoma.

Food, quinine and anti-smallpox vaccine, in addition to standard remedies, are urgently needed. American doctors are directing the work of native physicians. The suffering is great. The opportunity for charity is beyond ordinary comprehension. Physicians should call these facts to the attention of philanthropists.

A BOGUS CANCER CURE.

THE Department of Health of New York City reports the investigation of the claim for a cure of cancer. This preparation consisted of clay with a small amount of sulphur which was contained in a bag. The "cure" consisted in applying this compound, hot, to the affected part. Although testimony was given before a Federal judge to the effect that witnesses had been cured of cancer, registration was denied.

ANOTHER ROCKEFELLER GIFT.

It is reported that the Rockefeller Foundation has given £62,000 to endow chairs of medicine and surgery in Hong Kong University. The evidence of interest in Far Eastern medical education by this great organization is inspiring.

MEDICAL LEGISLATION IN KENTUCKY.

THE *Journal of the Kentucky Medical Association* reports that "everything the organized profession was back of, including every dollar asked for to carry on all of our health and medical activities, was passed with little opposition."

Either the profession was modest in its requests or the legislature of Kentucky has more confidence in the wisdom of the medical profession than is apparent in many other states.

It is reported that the opposition employed slanderous circular matter "mailed by the thousands," which helped rather than hindered favorable action. Kentucky and its medical profession are to be congratulated.

RESENTS CRITICISM.

DR. ALBERT ABRAMS of San Francisco has resigned from the American Medical Association and the San Francisco Medical Society because his claim for original work has been repudiated by these societies. He propounded a theory of the radioactivity of disease. If all the claimants for recognition who have been criticized should have exhibited ill temper upon learning of adverse judgment of the quality of work done, a great many good men would have gone off in a huff. Even a doctor must exhibit courage and loyalty to his convictions if he wishes to be respected.

OPPOSITION OF ANTIVACCINATIONISTS.

THE antivaccinationists, of Tacoma, recently held a mass meeting in which they protested against the appointment of Dr. Hubert Work as Postmaster General. The resolution setting forth why the doctor was not acceptable to the league was sent to President Harding and U. S. Senators.—*Northwest Medicine*.

LIST OF PUBLICATIONS ON INDUSTRIAL HYGIENE.

IN addition to the "List of Publications" issued by the International Labour Office, the Industrial Health Section intends shortly to begin issuing at regular intervals lists containing information regarding publications dealing with *Industrial Hygiene*. Although the International Labour Office cannot receive all medical and industrial periodicals, the Industrial Health Section is able to examine the most important publications dealing with industrial hygiene.

The International Labour Office therefore requests all scientists, and members of the medical profession who are interested in social and industrial medicine, to be good enough to furnish its Health Section (Industrial Health Section, International Labour Office, Geneva) with detailed bibliographical notes on their recent publications (the author's name, the title of the article and the date and number of the periodical in which it appeared); and they are also requested to forward, if possible, an off-print of such articles. In return, the International Labour Office will be pleased to supply its correspondents regularly with its bibliographical lists on *Industrial Hygiene*.

MASSACHUSETTS TUBERCULOSIS LEAGUE.

THE eighth annual conference of the Massachusetts Tuberculosis League began its sessions on the afternoon of April 20 with a meeting of the board of directors, President Edward O. Otis, M.D., in the chair. Two leading items of business were the election of officers for the coming year and the initiation of proceedings for incorporation of the League. The election resulted in the following list of officers:

President, Edward O. Otis, M.D., Boston; vice-president, Henry S. Dennison, Framingham; honorary vice-presidents, Eugene R. Kelley, M.D., Brookline, and Walter P. Bowers, M.D., Clinton; treasurer, Arthur Drinkwater, Cambridge; executive committee, to serve for three years, Francis A. Bagnall, Adams, and Louisa P. Loring, Beverly; to serve for one year, Arthur K. Stone, M.D., Framingham; directors at large, Mildred F. Ashley, R.N., Brookline; Henry D. Chadwick, M.D., Westfield; Merrill E. Champion, M.D., Cambridge; Mrs. Sumner Coolidge, Lakeville; Sumner H. Remick, M.D., Reading; Robert W. Kelso, Boston; Mrs. Henry C. Mason, Winchester; Gertrude Peabody, Cambridge; Francis G. Curtis, M.D., Newton; Cleveland Floyd, M.D., Boston.

The President was authorized by the meeting to appoint a committee to care for the details of incorporation, provision being made for turning over to the corporation papers and records now in the possession of the League.

The exercises on the 21st and 22nd were largely attended by representatives of local organizations throughout the State, health workers and many others interested in the subjects under discussion. Several of the papers will be published.

Charles J. Hatfield, M.D., Director of the National Tuberculosis League, gave an interesting historical account of the formation of the various societies engaged in health work and explained the coalition of the various organizations making up the National Health Council. He spoke of plans which are being studied which are designed to coördinate the activities of the various health organizations, with the hope that unnecessary duplication of effort may be eliminated.

The report of the committee on nursing education follows:

REPORT OF THE COMMITTEE ON NURSING EDUCATION.

During the summer of 1921 the following group of people met for the discussion of the possibilities of improving the tuberculosis side of nursing education in the training schools in Massachusetts. Miss Billings and Miss Gardner represented the National Organization

for Public Health Nursing, Miss Anne Strong and Miss Sally Johnson the League for Nursing Education, Dr. Merrill E. Champion, State Department of Health, Dr. Henry D. Chadwick, Tuberculosis Institutions, and Mr. Spencer the Secretary, the Massachusetts Tuberculosis League.

This committee was later recognized by the Massachusetts Tuberculosis League as its Committee on Nursing Education. Under the auspices of the committee the State League Office sent out a questionnaire to the 96 nurses' training schools of the State, asking them about their present training which they are giving in tuberculosis and preventive work and if they would be able to accept more free lecture service on tuberculosis work if it were offered and if they would be interested in sending their students for observation to tuberculosis hospitals. Seventy-six replies were received to this questionnaire, a summary of which is as follows: 34 hospitals replied that they had some form of instruction in tuberculosis nursing; 16 said this was given in general courses incidentally and the rest gave from one to 20 hours' work. Three hospitals gave a short period of practice on a tuberculosis ward. Thirty-two hospitals replied that they gave some attention to preventive work, ranging from three to 12 lectures, and 17 of the 32 said that instruction was given incidentally in connection with general courses. Fifty-two hospitals replied that they would be able to devote more time to the subject of tuberculosis if additional free lectures were offered. Eighteen hospitals said that they would be glad to send their students to tuberculosis hospitals for observation and 11 said they would attempt to do so.

Following the receipt and summary of this questionnaire another questionnaire was sent out to the 52 hospitals which had replied that they would be able to accept more free lecture service, asking them if they would take one lecture each on clinical tuberculosis, tuberculosis nursing, and a lecture on the sociological aspects of tuberculosis. To date of report 31 hospitals have applied for such service, 18 of which have asked for all three lectures. The lectures so far scheduled on clinical tuberculosis are being given by Dr. Edward O. Otis and Dr. Bradford Kent of Boston, Dr. Harry S. Wagner of Pocasset, Dr. Olin S. Pettengill of the Essex County Sanatorium, Dr. Alley of Rutland and Dr. Chadwick of Westfield; the lectures on tuberculosis nursing by Miss Bernice Billings of the Boston Association, and Miss Margaret Weir of Beverly; the lectures on the organized fight against tuberculosis, its history, aims, standards and methods of work by Mr. Spencer, outside of Cambridge, where lectures are being given by Mrs. Mabel Greeley Smith of the Cambridge Anti-Tuberculosis Association.

Correspondence.

DRIED MILK.

Mr. Editor:

In the BOSTON MEDICAL AND SURGICAL JOURNAL, on page 398 of Volume CLXXXV, under the heading "Medical Notes," there is a paragraph on the retention of water-soluble vitamins in reconstructed milk from milk powder made by the spray process, which is absolutely incorrect, and the truth is misstated in a manner which, to anyone conversant with the literature on the subject, places the JOURNAL in a position of ridicule. As this JOURNAL represents the Massachusetts Medical Society and is the oldest medical weekly journal in America, I feel sure that it is only through some gross error that such statements have been allowed to appear in it, and I trust that for its own sake the JOURNAL will see its way clear to disavow them publicly.

I have adopted as far as was possible in the above paragraph the verbiage of your courteous correspondent of the July 14, 1921, number of the JOURNAL (page 70), with the hope that as definite damnation will fall upon the head of the anonymous contributor of the paragraph on reconstructed milk, as fell on the luckless (not anonymous) writer of the article on goitre, to which your correspondent took exceptions. There are schools of embryology which do not wholly agree with your critic of July 14, but I can find in the literature no evidence which will justify the statement on reconstructed milk to which I take exception. Nor can I find that the advertising matter of the manufacturers of spray dried milk powder contains any such claim. To one who is familiar with the unwritten, and often written, law of journals, that they are in no way responsible for opinions or views expressed by contributors, it is difficult to understand how the JOURNAL would become an object of ridicule because of an error in statement made by a contributor, over his own signature. But editorial contributions, unsigned, should represent the opinions of the JOURNAL, and are in a totally different class. The character of the paragraph on reconstructed milk leads one to wonder whether it was, after all, an editorial offering. There is in its ingenious, or, rather, ingenious construction a suggestion of advertisement. If the contribution was supplied as an advertisement, and was received and paid for as such, then is the sin even greater.

But, seriously, as one deeply interested in the subject of the concentration of milk, may I call your attention to certain advantages and disadvantages which milk powder possesses.

Yours very sincerely,

TIMOTHY LEARY.

[NOTE.—Professor Leary's article appears in this issue of the JOURNAL and is a valuable contribution to the subject of dried milk.

The statement which appeared in the JOURNAL and which has roused the ire of the eminent professor was published for the reason that it sometimes happens that people travelling, or temporarily sojourning in a locality where one may not feel confident of the good quality of the available milk supply, may use reconstructed milk with comparative safety. Subsequent to the receipt of Professor Leary's criticism, an eminent pediatrician was asked his opinion of the comparative safety of milk powders in preparing food for children. He gave an opinion that so far as the milk part of the dietary is concerned there are reasons for its use and that the addition of orange juice to the child's diet would probably prevent the development of scorbatus. Permit me to suggest to Professor Leary that it is not

customary to include under the name water-soluble vitamins the anti-scorbutic vitamin C. Our statement is in entire agreement with a very large percentage of the professor's own views.

Perhaps Professor Leary will consult the book by H. C. Sherman, Professor of Food Chemistry, Columbia University, and S. L. Smith, Specialist in Biological and Food Chemistry, United States Department of Agriculture, page 14, line 25, where it is stated that "both water-soluble and fat-soluble growth producing substances are fairly soluble in alcohol, which accounts for the fact that Hopkins' alcoholic extract of dry milk contained both of these essentials." On page 183 of the same book it is stated that "Dried milk has repeatedly been used in different laboratories as the sole source of vitamin A with success." On page 213 it is stated that dried milk is an excellent source of vitamin A, a good source of vitamin B, and a variable source of vitamin C.

There is abundant evidence brought out in this book that dried milk may be used to advantage as a food. Professor Leary may claim that roll dried milk is safer and better than the spray dried product. He may be right, but it is a fine distinction.

McClendon and Bowers in an article published in Minnesota Medicine, Volume V, No. 4, speak definitely of the useful qualities of milk powders, although emphasis is given to the contention that the majority of milk powders are very poor in vitamin C if not supplemented by anti-scorbutic additions. Scurvy does not follow the use of dried milk powders immediately, but contaminated milk may produce serious conditions very quickly. Hence, one may reasonably contend that when in doubt about the quality of milk, dried milk powders as a basis for reconstructed milk may offer a comparatively safe resource for a time.

The JOURNAL is certainly grateful for evidence of the interest shown by Dr. Leary, even though his language lacks some of the finer qualities of courtesy. For the benefit of Dr. Leary and any others who may suspect the JOURNAL of lending its columns to an advertising propaganda, it may be stated that no one connected with the JOURNAL has any interest, direct or indirect, in any food product, or, indeed, in anything ever advertised.—Editor.]

OBJECTION TO INTERPRETATION OF
DR. COPELAND'S STATEMENT.

New York, April 19, 1922.

Mr. Editor:

In your issue of Thursday, April 6, 1922, you comment, editorially, on Commissioner Royal S. Copeland's remarks made in an after-dinner address at the Rotary Club of this city. There seems to have been not a little misunderstanding of the Commissioner's statements. The point he made was that the medical profession still clung to its old policy of secrecy and scientific aloofness and failed to inform the general public of the progress that has been made and is being made in the prevention and cure of disease, and that consequently a great many persons died each year whose lives could have been saved had they been informed in time of what could have been done for them, and had they availed themselves of this knowledge. The other point the Commissioner made was that, because of this adherence to antiquated ethical standards which kept from the public legitimate knowledge of preventive and curative surgery and medicine, quacks, charlatans and irregular practitioners were able to mislead the public with their fraudulent claims.

Dr. Copeland had no intention of advocating that individual physicians advertise either through free or paid publicity. What he did advocate was that the medical profession, as a whole, should give the public the benefit of its knowledge through properly organized publicity.

His comments were not in the form of "adverse comment" or of "bitter criticism." On the contrary, the suggestions contained in his address were intended to be helpful and constructive.

The publicity recently given Dr. Lorenz caused thousands and thousands of cripples in this city to apply for treatment. A very large percentage of these it was found possible to materially help. We are all familiar with the wonderful results that were obtained through the recent publicity campaign conducted against venereal disease and the advertising G. U. specialists. How many other examples might be cited of the good results of public health advertising!

You state: "If Dr. Copeland believes his own statements, he is not informed concerning the efforts which are made in Boston to enlighten the public by means of public lectures on medical subjects and the dissemination of literature among the laity relating to cancer, tuberculosis, diphtheria and other important diseases."

Dr. Copeland most assuredly believes his own statements, and, what is more important, he has the courage to practice what he preaches, and is continually giving to the lay press information which he believes will be helpful to the public. The Department of Health of New York City has, like that of Boston, endeavored to enlighten the public by means of lectures, monographs, etc. Dr. Copeland believes that while these methods serve a very useful purpose they do not reach all the public, most of whom, if indeed not all, can be reached through the newspapers. He further believes that it is important to present his facts in the lay press because it is in the advertising columns of the lay press that the quack exploits himself. Compare the space given to legitimate information on medical matters in the daily press with the paid advertising space used by charlatans and patent medicine vendors. Is it not about 100 to 1 in favor of the latter?

You state in the concluding paragraph of your editorial: "It is possible that the reporter did not give Dr. Copeland's views correctly."

You probably know from experience that the lay press is not always accurate in reporting the remarks of a public officer. There is always a tendency to exaggerate in order to make the article more interesting, but while the report you read may have been an exaggeration of what Dr. Copeland said, the fact remains that if even our present knowledge of medicine were widely disseminated thousands and thousands of lives could be saved annually. Diphtheria is now preventable and curable also, if diagnosed and treated promptly. Typhoid fever is an absolutely preventable disease. Syphilis is preventable and now also curable. Still thousands die yearly from these diseases and from other diseases that are just as preventable and just as curable. It is this point that Dr. Copeland sought to emphasize.

I feel that the matter under discussion is of sufficient importance to warrant me in correcting the opinion which you seem to have formed. Dr. Copeland is too interested in furthering the splendid work that the profession has done and is doing to allow the erroneous impression that he had spoken disparagingly of the profession to go uncorrected, and I am sure that he will, therefore, be glad to have you publish this letter *in toto*, or to quote from it, or comment upon it editorially, as you see fit.

Very truly yours,

S. DANA HUBBARD, M.D.

[NOTE:—The JOURNAL felt that the sweeping criticism of Dr. Copeland, if correctly reported, was unjust and unfair to the medical profession, and now takes equal exception to the statement in this communication of Dr. Hubbard, in which the following language appears: "The point he made was that the medical profession still clung to its old policy of secrecy and scientific aloofness and failed to inform the general public of the progress that has been made and is being made in the prevention and cure of disease." Whether this statement applies to the profession in all parts of the country or not Dr. Copeland should have known before making any statement which could have been so construed even by Dr. Hubbard.

In refutation of such expressions one may point to the publicity work of the cancer societies, the tuberculosis associations, the publications of the Metropolitan Life Insurance Company. The various state and city health departments all over the country, the public exercises conducted by the American College of Surgeons and the medical lectures here in Boston, especially adapted to lay comprehension and which are reported in the daily press. Aside from all these activities were not the millions of men in service in the Great War, as well as those in associated activities, given direct information relating to venereal diseases and demonstrations of preventive medicine in the measures employed to prevent and control typhoid fever, smallpox, typhus fever and other communicable diseases? That publicity has not been general enough is conceded, but a reasonable degree of effort made by the medical profession and allied health agencies to spread information which can be assimilated and applied by the laity is in evidence.

The medical profession does not cling to the old policy of secrecy and scientific aloofness. If there are any members of the profession who are guilty of this purpose they do not represent the profession.—Editor.]

HOLDEN DISTRICT HOSPITAL, INC.

Replying to your letter of April 17, asking particulars about the new hospital in Holden, will say that the work of construction of the building has begun and it is expected it will be ready for occupancy early in September. The site is a plateau overlooking the central village of the town, on a lot consisting of nine acres, contributed for the purpose by Mr. Bertram S. Newell. The contract calls for a brick-over-tile structure which shall accommodate 25 patients, and provision is made for nurses' quarters, pathological and x-ray laboratories, an operating suite, etc. General medical, surgical and obstetrical cases will be taken. The completed cost of the building, it is estimated, will be about \$45,000. It is not possible at this time to estimate just what the expense of furniture and equipment will be, for many have signified an intention of furnishing rooms and wards and the cost will vary somewhat with the wishes of the donors. Most of the appliances in the present building will be moved to the new quarters when completed.

Although the corporation was formed three years ago under the name of Holden Hospital, Inc., in order to conform to the wishes of some of the people in the adjoining towns and to indicate more appropriately the community served, it was recently voted to change the name to Holden District Hospital, Inc.

On completion of the new structure, the funds will have been contributed by people of Holden, Rutland, Princeton and Onkham, though up to very re-

cently the hospital has been supported largely by the Holden people exclusively. Likewise in the future the other towns will partake in its management and maintenance.

By the will of the late Mrs. Anna E. Forbush the hospital receives about \$5000, to be applied to the maintenance fund.

Very truly yours,

FRANK H. WASHBURN.

A PARODY.

Mr. Editor:

The circular of Dr. Gregory which called forth your editorial entitled "An Appeal of a Quack to Possible Quacks" had on its first page the well-known stanzas:

Careless seems the great avenger.
History's pages e'er review
That death struggles in the darkness
Twixt old systems and the new.
Truth forever on the scaffold,
Wrong forever on the throne,
Yet that scaffold rules the future
And behind the deep unknown
Standeth God within the shadow,
Keeping watch above his own.

My copy, which came to me from a rural section of Boston, had as a continuation of the above:

Come and join the drugless healer,
Gregory of matchless fame,
Starting heart's suspended function'
Into active work again.
Throw away your old diplomas,
Though our Gregory has three.¹
Combined drugless methods do it
If the spine adjusted be.
It is well that God is watching
What we mortals do below,
For the fools are sure to follow
Where the chiropractors go.

¹"Dr. Gregory teaches how to restore the heart to action after it has stopped by the use of different methods which will not fail if any reflex response can be aroused, and thus enables you to save life in many cases."
²"M.D., D.C., D.S."

SAMUEL B. WOODWARD.

PANCREATIC EXTRACTS FOR THE TREATMENT OF DIABETES.

April 27, 1922.

Mr. Editor:

A good many persons have asked me about the experiments recently conducted in Toronto with pancreatic extracts for the treatment of diabetes. Last December I went to New Haven on purpose to hear the subject presented by Dr. Banting and Dr. Best and was not disappointed. Their investigations appear to have overcome the difficulties of earlier experimenters in that they have secured an extract of the internal secretion of the gland which has escaped injury from the powerful and abundant external digestive secretion. Their ingenious method was to ligate the pancreatic duct, and in accordance with experiments long known, after 7-10 weeks the gland tissue atrophied, but the Islands of Langerhans were largely preserved. Working with such an atrophied gland obtained from dogs, the extract was obtained and later an equally good extract was also obtained from the fetal pancreatic gland of calves, due in this latter case to the non-proteolytic action of such a gland. By injecting these extracts intravenously or subcutaneously into dogs, made artificially diabetic, they noted that the

urinary sugar, the blood sugar, and the acidosis decreased while the respiratory quotient rose more than is usual in diabetics and the clinical condition of the animals improved. In December they reported that dogs so treated lived six weeks, but I note in their article published in the March number of the *Canadian Medical Association Journal* at Toronto, the lives of such dogs had been preserved for seventy days. At the meeting Dr. Allen stated that the limit of life of such dogs, in his experiments, was fourteen days.

In the article above referred to they also report results with seven diabetic patients. In these cases favorable effects were also achieved. On the other hand, the injections yield only temporary results and severe toxic reactions may be encountered, so that as yet the method is not applicable to general use. The significance of the experiments for diabetic therapy is, however, unquestioned, because these offer a lead for future exploration which previously did not exist. The treatment of diabetes in a manner similar to myxedema does not now seem to be so remote. That the heads of the Departments of Physiology, Pharmacology, Hygiene, and Medicine in the Toronto Medical School, are all coöperating in this research shows how seriously and energetically it is being conducted. Further reports are promised at the meeting of the Congress of American Physicians and Surgeons, in Washington, the first week of May.

Very truly yours,

ELLIOTT P. JOSLIN.

CONGRES DES DERMATOLOGISTES ET SYPHILIGRAPHES.

A Congress of Dermatologists and Syphilologists, conducted in French, will take place in Paris on June 6th, 7th, and 8th, 1922, under the patronage of the Société Française de Dermatol. & Syphiligraphs.

Those eligible to regular membership in the Congress are: (a) Members of National Societies of Derm. & Syph.; (b) Doctors interested in Derm. & Syph.

Subscription to the Congress will be sixty francs.

The meeting will be held at the St. Louis Hospital at 9 A.M. and 2 P.M. At the morning meetings patients will be shown and special papers will be read. The afternoon sessions will be given to the discussion of the following papers:

1. Epidermomycoses (excluding ringworm of the scalp), M. le Dr. Petges (Bordeaux).
2. Subacute Inguinal Lymphogranuloma of Venereal Origin, M. le Prof. J. Nicolas et M. le Dr. Favre (Lyons).
3. Colloidales reactions in venous syphilis. Reactions to Colloidal Gold, to Gum Mastic, to Colloidal Benzoin, M. le Dr. Guy Laroche.

For the Committee,

HUDELO.

Communications and subscriptions to the Congress should be sent before May 15th, 1922, to M. le Dr. Hudelo, 8 rue d'Alger, Paris. Titles of papers, accompanied by a short résumé, should be sent to M. le Dr. Hudelo before May 1st.

NOTICES.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 4, 1922, at 4 o'clock. Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination. Richard H. Miller, Secretary, 402 Marlborough St., Boston.

NORFOLK DISTRICT MEDICAL SOCIETY.—The seventy-second annual meeting will be held at the American House, Boston, Tuesday, May 9, 1922, at 5 o'clock, sharp. Order of exercises: Minutes of previous meeting, reports of committees, report of treasurer, election of officers, incidental business. Dinner at 6 o'clock, sharp. Seats have been engaged for the evening performance at B. F. Keith's theatre. The tickets are for reserved seats in the orchestra and will be distributed during the dinner that members sitting together may be able to do so at the theatre as well. All who expect to attend the dinner are urged to notify the Secretary. An assessment of two dollars and fifty cents will be made for the dinner and theatre.

C. D. KNOWLTON, *President*.
BRADFORD KENT, *Secretary*.

List of nominations, Norfolk District Medical Society, for 1922-1923:

President, Dr. William J. Walton, Dorchester.
Vice-President, Dr. William H. Howell, Roslindale.

Secretary, Dr. Bradford Kent, Dorchester.
Treasurer, Dr. G. W. Kaan, Brookline.
Commissioner of Trials, Dr. M. V. Pierce, Milton.
Nominating Councillor, Dr. D. N. Blakely, Brookline; Dr. D. G. Eldredge (Alternate), Dorchester.
Censors: Dr. C. F. Stack, Supervisor, Hyde Park; Dr. E. T. Rollins, Jamaica Plain; Dr. T. J. Murphy, Roxbury; Dr. G. G. Bulfinch, Brookline; Dr. A. A. MacDonald, Dorchester.

Councillors: Dr. C. E. Allard, Dorchester; Dr. W. B. Batchelder, Dorchester; Dr. E. H. Baxter, Hyde Park; Dr. D. N. Blakely, Brookline; Dr. J. P. Broderick, Jamaica Plain; Dr. A. N. Broughton, Jamaica Plain; Dr. J. A. Ceconi, Dorchester; Dr. D. G. Eldredge, Dorchester; Dr. T. F. Greene, Roxbury; Dr. W. H. Greene, Roxbury; Dr. W. A. Griffin, Sharon; Dr. R. W. Hastings, Brookline; Dr. F. C. Jillson, Jamaica Plain; Dr. G. W. Kaan, Brookline; Dr. W. B. Keeler, Roxbury; Dr. Bradford Kent, Dorchester; Dr. M. V. Pierce, Milton; Dr. H. H. Power, Brookline; Dr. Victor Safford, Jamaica Plain; Dr. G. H. Scott, Roxbury; Dr. C. F. Stack, Hyde Park; Dr. Max Sturnick, Roxbury; Dr. Augusta Williams, Brookline; Dr. G. W. Winchester, Mattapan.

GEORGE H. FRANCIS,
Chairman Nominating Committee.

NEW ENGLAND PEDIATRIC SOCIETY—The 75th meeting will be held at the Boston Medical Library on Friday, May 12, 1922, at 8:15 P. M.

The following papers will be read:
Acidosis, Oscar M. Schloss, M.D., Boston.
The Use of Convalescent Serum in the Treatment of Scarlet Fever, Edwin H. Place, M.D., Boston.
Mothers with Positive Wassermann Reactions, and their Children, David L. Belding, M.D., Boston.
Light refreshments will be served after the meeting.

RICHARD M. SMITH, M.D., *President*.
LEWIS W. HILL, M.D., *Secretary*.

HAMPDEN DISTRICT MEDICAL SOCIETY.—At the annual meeting at Hotel Nonotuck, Holyoke, on Tuesday, April 25, 1922, it was voted to hold the next meeting of the Society at the Holyoke Canoe Club in July, and to invite Hampshire District to meet with Hampden.

The following officers were elected: President: Morgan B. Hodskins of Monson; Vice-President, Richard S. Benner of Springfield; Secretary and Treasurer, Hervey L. Smith of Springfield; Committee of trials, Frederick B. Sweet of Springfield; Censors, A. C. Eastman of Springfield, supervising censor, F. L. Everett of Springfield, Geo. D. Hen-

derson and J. J. Carroll of Holyoke, F. T. Clark of Westfield; Councillors, E. P. Bagg, Jr., of Holyoke; Nom. Councillor, E. A. Knowlton of Holyoke; Alternate, Philip Kilroy; A. C. Eastman, A. G. Rice, F. F. Dexter, E. C. Dubois and D. E. Harriman of Springfield, J. P. Schneider of Palmer, M. B. Hodskins of Monson, J. J. McCabe, G. L. Gabler, and Jean H. Celce of Holyoke, Geo. H. Janes of Westfield, and J. H. C. Gallagher of Chicopee. H. L. Smith, Secretary.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY.—The officers elected at the annual meeting were as follows: President, Lewis F. Baker, Fitchburg; Vice-President, Francis M. McMurray, Fitchburg; Secretary, Curtis H. Jennings, Fitchburg; Treasurer, Frederick H. Thompson, Jr.; Committee of Trials, C. H. Bailey, Gardner. Nom. Coun., H. R. Nye, Leominster; Alternate, J. G. Henry, Winchendon. Councillors, W. E. Currier, Leominster; J. G. Henry, Winchendon; H. R. Nye, Leominster; A. H. Quesay, Fitchburg. Censors, A. H. Quesay, Fitchburg, Super., G. P. Norton, Fitchburg; C. G. Brigham, Leominster; C. E. Woods, Lunenburg; T. B. Donovan, Fitchburg.

MARION ELEANOR LEEPER, M.D.

Dr. Marion E. Leeper, a member of the Massachusetts Medical Society and a prominent practitioner of Northampton, died at Springfield, April 20, 1922, following an operation on the gall-bladder, at the age of 40.

Dr. Leeper was a native of Cleveland, Ohio, a graduate of Oberlin College in the class of 1904, and of the medical department of the University of Michigan in 1907. She served at the dispensary of the New England Hospital for Women and Children in Boston for a time and settled in Poughkeepsie, at Vassar College. In 1912 she moved to Northampton, where she was on the faculty of Smith College, becoming at that time a member of the State Medical Society. Dr. Leeper was never married. She is survived by her father, a brother and two nieces in Cleveland, Ohio.

RECENT DEATHS.

Word has been received of the sudden death of Dr. Charles Rumford Walker of Concord, N. H., on April 22, 1922, at the age of 70. He was a graduate of Yale College in the class of 1874 and of Harvard Medical School in 1878. A prominent practitioner of Concord, he had been a member of the New Hampshire Medical Society since 1878 and for many years a member of the American Medical Association. At the time of his death Dr. Walker was president of the New Hampshire Savings Bank.

[NOTE:—The newspapers mixed this Dr. Walker with Dr. Charles S. Walker of Keene, who was president of the New Hampshire State Society in 1921.]

NOTICE! NO MAILING ADDRESS GIVEN!

A letter requesting a Point Scale (Yerkes and Rossy) and a Clinical Chart (Jellalian) was received in this office April 24. It was mailed in Worcester April 3, but was misdirected. Will the doctor who mailed the above letter please notify us and the Point Scale and Clinical Chart will be sent at once.

BOSTON MEDICAL AND SURGICAL JOURNAL.